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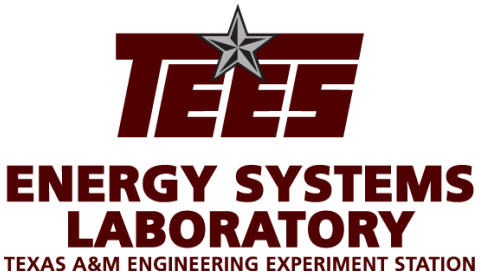

TAMU Project

Energy Consumption Data Quality Assurance/Quality Control Assessment Report for the

Month of July 2016

Prepared for

Utility & Energy Services

Division of Administration

Texas A&M University

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Acknowledgements

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Executive Summary

This report analyzes the energy use data collected from 567 meters in 190 buildings and complexes (approximately 17,100,000 GSF) on the campus of Texas A&M University in College Station, Texas. The report consists of five sections: 1) The summary of the monthly energy consumption per meter ID, 2) The quality control and assurance analysis of incorrect or incomplete energy use patterns, 3) Energy consumption time series plots, 4) Energy Balance plots, and 5) Energy Balance plots with filled-in consumption data. Section one contains the summary of monthly energy consumption for each of the TAMU buildings. Section two includes the reviews on each of those building energy use patterns that presented problems in the metered data. Section three and four are a collection of the plots generated for the energy use analysis, as reference to indicate and validate the quality of the metered energy data. The Section five includes the energy balance plots with filled-in energy data.

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I. Summary of Monthly Consumption

Table I-1 July 2016 Monthly Consumption for TAMU Buildings

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
0270	Emerging Technologies Building	305,316	007469	ELE	189,405	kWh	
0270	Emerging Technologies Building	305,316	007470	ELE	51,337	kWh	
0270	Emerging Technologies Building	305,316	007471	CHW	4,121,576	mBtu	
0270	Emerging Technologies Building	305,316	007475	HHW	161,554	mBtu	
0275	Liberal Arts and Arts & Humanities Building	107,500	007715	ELE	55,187	kWh	
0275	Liberal Arts and Arts & Humanities Building	107,500	007716	CHW	645,974	mBtu	
0275	Liberal Arts and Arts & Humanities Building	107,500	007717	HHW	38,659	mBtu	
0290	Wells Residence Hall	67,283	006870	ELE	33,282	kWh	
0290	Wells Residence Hall	67,283	001984	CHW	1,102,996	mBtu	(2)
0290	Wells Residence Hall	67,283	001988	HHW	385,630	mBtu	(2)
0291	Rudder Residence Hall	67,283	000351	ELE	53,535	kWh	
0291	Rudder Residence Hall	67,283	002132	CHW	886,984	mBtu	(2)
0291	Rudder Residence Hall	67,283	002136	HHW	190,345	mBtu	(2)
0292	Eppright Residence Hall	67,283	000002	ELE	35,805	kWh	
0292	Eppright Residence Hall	67,283	002262	CHW	749,071	mBtu	
0292	Eppright Residence Hall	67,283	002266	HHW	219,648	mBtu	
0293	Appelt Residence Hall	82,767	000003	ELE	40,709	kWh	
0293	Appelt Residence Hall	82,767	002062	CHW	898,030	mBtu	*, (2)
0293	Appelt Residence Hall	82,767	002066	HHW	265,754	mBtu	*, (2)
0294	Lechner Residence Hall	59,541	000004	ELE	38,455	kWh	
0294	Lechner Residence Hall	59,541	002285	CHW	769,832	mBtu	(2)
0294	Lechner Residence Hall	59,541	002289	HHW	439,726	mBtu	(2)
0296-0297	Mitchell Inst. For Fundamental Phys & Astronomy	189,617	006536	ELE	109,058	kWh	
0296-0297	Mitchell Inst. For Fundamental Phys & Astronomy	189,617	006537	ELE	100,422	kWh	
0296-0297	Mitchell Inst. For Fundamental Phys & Astronomy	189,617	006534	CHW	1,684,690	mBtu	
0296-0297	Mitchell Inst. For Fundamental Phys & Astronomy	189,617	006535	HHW	196,820	mBtu	
0353	Bright Aerospace Building	148,837	001569	ELE	157,777	kWh	*
0353	Bright Aerospace Building	148,837	002746	CHW	1,467,518	mBtu	*, #, (1), (2)
0353	Bright Aerospace Building	148,837	002757	HHW	47,309	mBtu	*, (2)
0358	Davis Football Player Development Center	20,026	007699	ELE	27,869	kWh	
0358	Davis Football Player Development Center	20,026	007701	CHW	270,990	mBtu	
0358	Davis Football Player Development Center	20,026	007702	HHW	2,963	mBtu	
0361	Bright Football Complex	124,971	008461	ELE	199,998	kWh	
0361	Bright Football Complex	124,971	002547	CHW	1,847,823	mBtu	
0361	Bright Football Complex	124,971	002551	HHW	132,457	mBtu	
0367	Kyle Field	489,000	000336	ELE	159,092	kWh	*
0367	Kyle Field	489,000	008861	ELE	79,840	kWh	
0367	Kyle Field	489,000	008862	ELE	112,236	kWh	
0367	Kyle Field	489,000	008863	ELE	177,944	kWh	
0367	Kyle Field	489,000	008864	ELE	172,283	kWh	
0367	Kyle Field	489,000	008865	ELE	78,173	kWh	
0367	Kyle Field	489,000	008866	ELE	119,846	kWh	
0367	Kyle Field	489,000	008867	ELE	167,742	kWh	
0367	Kyle Field	489,000	008868	ELE	83,165	kWh	
0367	Kyle Field	489,000	008852	CHW	3,326,568	mBtu	
0367	Kyle Field	489,000	008026	CHW	4,740,230	mBtu	
0367	Kyle Field	489,000	008856	HHW	43,808	mBtu	
0367	Kyle Field	489,000	008027	HHW	756,689	mBtu	
0376	Chemistry Building Addition	115,797	006229	ELE	191,151	kWh	
0376	Chemistry Building Addition	115,797	006230	ELE	117,411	kWh	
0376	Chemistry Building Addition	115,797	007115	CHW	5,584,096	mBtu	
0376	Chemistry Building Addition	115,797	007119	HHW	735,387	mBtu	
0383	Koldus Building	110,272	001488	ELE	164,804	kWh	
0383	Koldus Building	110,272	002863	CHW	1,139,132	mBtu	(2)
0383	Koldus Building	110,272	002874	HHW	129,036	mBtu	(2)
0384	Sanders Corps of Cadets Center	19,363	001554	ELE	24,278	kWh	
0384	Sanders Corps of Cadets Center	19,363	002583	CHW	276,993	mBtu	
0384	Sanders Corps of Cadets Center	19,363	002587	HHW	68,957	mBtu	
0325-0385	CE TTI Office & Lab Building	157,844	009122	ELE	167,773	kWh	
0325-0385	CE TTI Office & Lab Building	157,844	009123	CHW	1,572,913	mBtu	
0325-0385	CE TTI Office & Lab Building	157,844	009124	HHW	62,064	mBtu	
0385-A	CE TTI Office & Lab Building - Pi R Square	9,393	004240	CHW	222,628	mBtu	*
0385-A	CE TTI Office & Lab Building - Pi R Square	9,393	004245	HHW	2,178	mBtu	*
0386	Jack E. Brown Chemical Engineering Building	205,000	001428	ELE	180,906	kWh	
0386	Jack E. Brown Chemical Engineering Building	205,000	001429	ELE	357,343	kWh	
0386	Jack E. Brown Chemical Engineering Building	205,000	002250	CHW	6,644,072	mBtu	
0386	Jack E. Brown Chemical Engineering Building	205,000	006871	CHW	107,493	mBtu	
0386	Jack E. Brown Chemical Engineering Building	205,000	002254	HHW	445,066	mBtu	

Table I-1 July 2016 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
0387	Richardson Petroleum Engineering Building	113,700	005870	ELE	85,025	kWh	
0387	Richardson Petroleum Engineering Building	113,700	005872	ELE	105,609	kWh	
0387	Richardson Petroleum Engineering Building	113,700	005805	CHW	2,044,438	mBtu	
0387	Richardson Petroleum Engineering Building	113,700	005809	HHW	120,731	mBtu	#, (1)
0391-0392	James J. Cain'51 and Mechanical Engineering Office Building	173,481	001573	ELE	210,111	kWh	
0391-0392	James J. Cain'51 and Mechanical Engineering Office Building	173,481	002906	CHW	1,967,227	mBtu	
0391-0392	James J. Cain'51 and Mechanical Engineering Office Building	173,481	002910	HHW	132,669	mBtu	
0394	Underwood Residence Hall	81,730	000014	ELE	31,999	kWh	(2)
0394	Underwood Residence Hall	81,730	002117	CHW	NA	mBtu	*
0394	Underwood Residence Hall	81,730	002121	HHW	NA	mBtu	*
0398	Langford Architecture Center Building A	116,619	003806	ELE	99,906	kWh	
0398	Langford Architecture Center Building A	116,619	003951	CHW	1,087,153	mBtu	
0398	Langford Architecture Center Building A	116,619	003955	HHW	1,377	mBtu	
0400-0402-1405	Spence Hall, Briggs Hall, and Ash II LLC	NA	009169	ELE	68,832	kWh	
0400	Spence Hall Dorm 1	31,952	009170	CHW	891,674	mBtu	*, (2)
0400	Spence Hall Dorm 1	31,952	009171	HHW	344,516	mBtu	*, (2)
0401-0403-1404	Kiest Hall, Fountain Hall, and Plank LLC	NA	009150	ELE	66,746	kWh	
0401	Kiest Hall Dorm 2	35,967	009151	CHW	1,024,193	mBtu	*, (2)
0401	Kiest Hall Dorm 2	35,967	009152	HHW	247,293	mBtu	*, (2)
0402	Briggs Hall Dorm 3	32,139	009205	ELE	NA	kWh	*
0402	Briggs Hall Dorm 3	32,139	009206	CHW	609,182	mBtu	*, (2)
0402	Briggs Hall Dorm 3	32,139	009207	HHW	119,908	mBtu	*, (2)
0403	Fountain Hall Dorm 4	36,893	009222	ELE	NA	kWh	*
0403	Fountain Hall Dorm 4	36,893	009223	CHW	503,691	mBtu	*, (2)
0403	Fountain Hall Dorm 5	36,893	009224	HHW	122,405	mBtu	*, (2)
0404	Gainer Hall Dorm 5	33,904	009227	ELE	NA	kWh	*
0404	Gainer Hall Dorm 5	33,904	009228	CHW	439,665	mBtu	*, (2)
0404	Gainer Hall Dorm 5	33,904	009229	HHW	106,153	mBtu	*, (2)
0405-0407-1402	Lacy Hall - Dorm 6, Harrell Hall and Leadership Learning Center	91,310	007721	ELE	51,485	kWh	
0407-1402	Harrell Hall - Dorm 8 and Buzbee LLC	54,443	007722	CHW	628,214	mBtu	
0407-1402	Harrell Hall - Dorm 8 and Buzbee LLC	54,443	007723	HHW	41,203	mBtu	
0405	Lacy Hall - Dorm 6	36,867	007922	ELE	19,851	kWh	
0405	Lacy Hall - Dorm 6	36,867	007918	CHW	454,308	mBtu	
0405	Lacy Hall - Dorm 6	36,867	007919	HHW	50,247	mBtu	
0407	Harrell Hall - Dorm 8	36,943	007729	ELE	16,491	kWh	
1402	Buzbee Leadership Learning Center	17,500	007725	CHW	217,623	mBtu	#, (1)
1402	Buzbee Leadership Learning Center	17,500	007726	HHW	592	mBtu	
0404-0406-1403	Leonard Hall - Dorm 7 and Ash LLC	88,083	007981	ELE	57,004	kWh	
0406-1403	Leonard Hall - Dorm 7 and Ash LLC	54,179	007982	CHW	658,541	mBtu	#, (1)
0406-1403	Leonard Hall - Dorm 7 and Ash LLC	54,179	007983	HHW	43,380	mBtu	
0406	Leonard Hall - Dorm 7	36,893	008011	ELE	10,280	kWh	
0406	Leonard Hall - Dorm 7	36,893	008012	ELE	9,290	kWh	*
1403	H. Grady Ash, Jr. '58 Leadership Learning Center	17,286	008005	CHW	180,613	mBtu	#, (1)
1403	H. Grady Ash, Jr. '58 Leadership Learning Center	17,286	008006	HHW	6,008	mBtu	
0412	Moses Residence Hall	40,828	000027	ELE	26,637	kWh	
0412	Moses Residence Hall	40,828	002384	CHW	734,222	mBtu	(2)
0412	Moses Residence Hall	40,828	002395	HHW	138,121	mBtu	
0415	Davis-Gary Residence Hall	40,828	000030	ELE	25,659	kWh	
0415	Davis-Gary Residence Hall	40,828	002532	CHW	684,587	mBtu	#, (1)
0415	Davis-Gary Residence Hall	40,828	002543	HHW	102,922	mBtu	
0419	Legett Residence Hall	45,134	000031	ELE	NA	kWh	*
0419	Legett Residence Hall	45,134	002218	CHW	NA	mBtu	*
0419	Legett Residence Hall	45,134	002222	HHW	NA	mBtu	*
0420	Milner Hall	48,268	009144	ELE	24,825	kWh	
0420	Milner Hall	48,268	009145	CHW	395,722	mBtu	
0420	Milner Hall	48,268	009146	HHW	35,348	mBtu	
0422	Walton Residence Hall	51,494	000378	ELE	81,896	kWh	
0422	Walton Residence Hall	51,494	002364	HHW	42,982	mBtu	
0424	Hotard Hall	18,500	000032	ELE	14,625	kWh	
0424	Hotard Hall	18,500	002657	CHW	251,323	mBtu	
0424	Hotard Hall	18,500	002668	HHW	55,311	mBtu	
0425	Henderson Hall	22,185	001553	ELE	14,726	kWh	
0425	Henderson Hall	22,185	002607	CHW	334,461	mBtu	
0425	Henderson Hall	22,185	002611	HHW	68,823	mBtu	
0426-0427-0428	FHK Complex	154,349	000331	ELE	113,503	kWh	
0426-0427-0428	FHK Complex	154,349	002848	CHW	1,894,542	mBtu	
0426-0427-0428	FHK Complex	154,349	002859	HHW	128,973	mBtu	
0430	Schumacher Residence Hall	38,957	000034	ELE	28,636	kWh	
0430	Schumacher Residence Hall	38,957	002015	CHW	520,161	mBtu	
0430	Schumacher Residence Hall	38,957	002030	HHW	14,827	mBtu	

Table I-1 July 2016 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
0359	Architecture Building B	28,545	005518	ELE	21,030	kWh	
0432	Architecture Building C	73,020	005584	ELE	74,557	kWh	
0359-0432	Architecture Building B&C	101,565	006419	CHW	862,080	mBtu	
0359-0432	Architecture Building B&C	101,565	006423	HHW	171,184	mBtu	
0434	Luedecke Building (Cyclotron)	80,646	005555	ELE	125,830	kWh	
0434	Luedecke Building (Cyclotron)	80,646	005558	ELE	1,072,920	kWh	
0434	Luedecke Building (Cyclotron)	80,646	006664	CHW	2,175,693	mBtu	
0434	Luedecke Building (Cyclotron)	80,646	006668	HHW	39,535	mBtu	
0435	Harrington Education Center Office Tower	130,844	001546	ELE	123,688	kWh	
0435	Harrington Education Center Office Tower	130,844	002792	CHW	1,356,525	mBtu	
0435	Harrington Education Center Office Tower	130,844	002796	HHW	321,543	mBtu	
0436	Reed-McDonald Building	77,435	006868	ELE	92,569	kWh	
0436	Reed-McDonald Building	77,435	002419	CHW	2,604,422	mBtu	
0436	Reed-McDonald Building	77,435	002423	HHW	284,849	mBtu	
0438	Harrington Education Center Classroom Building	61,860	003630	ELE	35,161	kWh	
0438	Harrington Education Center Classroom Building	61,860	002784	CHW	348,913	mBtu	
0438	Harrington Education Center Classroom Building	61,860	002788	HHW	1,207	mBtu	
0433-0440-0441-04	Mosher Commons Krueger Dunn Aston	577,584	009099	ELE	291,050	kWh	
0433	Mosher Residence Hall	155,430	009083	ELE	66,656	kWh	(2)
0433	Mosher Residence Hall	155,430	002485	CHW	2,121,260	mBtu	*
0433	Mosher Residence Hall	155,430	002489	HHW	632,151	mBtu	*, (2)
0440	Commons Hall	84,500	009237	CHW	NA	mBtu	*
0440	Commons Hall	84,500	009238	HHW	NA	mBtu	*
0441	Krueger Residence Hall	112,133	009091	ELE	76,442	kWh	
0441	Krueger Residence Hall	112,133	002504	CHW	1,243,872	mBtu	*, #, (1)
0441	Krueger Residence Hall	112,133	002500	HHW	32,976	mBtu	*, #, (1)
0442	Dunn Residence Hall	112,133	009095	ELE	92,800	kWh	
0442	Dunn Residence Hall	112,133	002519	CHW	992,929	mBtu	
0442	Dunn Residence Hall	112,133	002515	HHW	245,546	mBtu	
0447	Aston Residence Hall	113,388	009087	ELE	55,136	kWh	
0447	Aston Residence Hall	113,388	002474	CHW	1,320,569	mBtu	
0447	Aston Residence Hall	113,388	002470	HHW	342,341	mBtu	
0443	Oceanography & Meteorology Building	180,316	005322	ELE	175,763	kWh	
0443	Oceanography & Meteorology Building	180,316	005323	ELE	63,791	kWh	
0443	Oceanography & Meteorology Building	180,316	006388	CHW	1,617,098	mBtu	*
0443	Oceanography & Meteorology Building	180,316	006392	HHW	188,756	mBtu	*
0444	Peterson Building	84,831	004714	ELE	157,106	kWh	
0444	Peterson Building	84,831	002922	CHW	1,419,011	mBtu	
0444	Peterson Building	84,831	006435	HHW	99,590	mBtu	
0445-0517	Teague Research Center and DPC Annex	89,735	003948	ELE	28,934	kWh	
0445-0517	Teague Research Center and DPC Annex	89,735	004719	ELE	53,645	kWh	
0445	Teague Research Center	63,515	006411	CHW	495,825	mBtu	
0445	Teague Research Center	63,515	006415	HHW	24,455	mBtu	
0517	DPC Annex	26,220	006563	CHW	740,936	mBtu	
0517	DPC Annex	26,220	006567	HHW	259,682	mBtu	
0446	Rudder Theatre Complex	209,293	002977	ELE	111,669	kWh	
0446	Rudder Theatre Complex	209,293	002980	ELE	27,349	kWh	
0446	Rudder Theatre Complex	209,293	004297	CHW	2,358,202	mBtu	(2)
0446	Rudder Theatre Complex	209,293	004309	HHW	843,521	mBtu	(2)
0446	Rudder Tower	92,947	001550	ELE	41,400	kWh	
0446	Rudder Tower	92,947	001551	ELE	55,895	kWh	
0446	Rudder Tower	92,947	002455	CHW	1,111,274	mBtu	
0446	Rudder Tower	92,947	002459	HHW	52,264	mBtu	
0448	Adams Band Hall	55,248	000978	ELE	57,671	kWh	
0448	Adams Band Hall	55,248	002555	CHW	530,952	mBtu	
0448	Adams Band Hall	55,248	002566	HHW	268,321	mBtu	
0449	Biological Sciences Building - West	96,038	003978	ELE	191,860	kWh	
0449	Biological Sciences Building - West	96,038	003981	CHW	1,901,647	mBtu	
0449	Biological Sciences Building - West	96,038	003985	HHW	64,936	mBtu	
0450	Duncan Dining Hall	128,482	000300	ELE	65,317	kWh	
0450	Duncan Dining Hall	128,482	002998	CHW	1,087,838	mBtu	
0450	Duncan Dining Hall	128,482	003009	HHW	136,883	mBtu	
0454	MSC (East Main)	392,000	007600	ELE	286,357	kWh	
0454	MSC (West Main)	392,000	007601	ELE	198,348	kWh	
0454	MSC BOR	392,000	008047	ELE	18,304	kWh	
0454	MSC	392,000	007584	CHW	4,037,622	mBtu	
0454	MSC BOR	392,000	004184	CHW	592,376	mBtu	
0454	MSC	392,000	007585	HHW	223,672	mBtu	
0454	MSC BOR	392,000	004196	HHW	198,385	mBtu	

Table I-1 July 2016 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
0456	Military Sciences Building	43,808	006939	CHW	628,917	mBtu	
0456	Military Sciences Building	43,808	006943	HHW	176,005	mBtu	
0457	TAES Annex Building	16,364	005863	ELE	13,645	kWh	
0457	TAES Annex Building	16,364	005913	CHW	127,485	mBtu	
0457	TAES Annex Building	16,364	005917	HHW	29,293	mBtu	
0461	Coke Building	24,466	004008	ELE	26,287	kWh	
0461	Coke Building	24,466	005307	CHW	172,750	mBtu	
0461	Coke Building	24,466	004023	HHW	408	mBtu	
0462	Academic Building	82,555	005861	ELE	17,270	kWh	
0462	Academic Building	82,555	005903	ELE	32,745	kWh	
0462	Academic Building	82,555	005905	CHW	654,255	mBtu	* # (1)
0462	Academic Building	82,555	005909	HHW	330,291	mBtu	* # (1)
0463	Psychology Building	48,215	001575	ELE	40,528	kWh	
0463	Psychology Building	48,215	002941	CHW	658,539	mBtu	
0463	Psychology Building	48,215	002945	HHW	22,342	mBtu	
0464	State Chemist Building	20,027	005839	ELE	16,016	kWh	
0464	State Chemist Building	20,027	005837	ELE	8,788	mBtu	
0464	State Chemist Building	20,027	005841	HHW	225	mBtu	
0465	Butler Hall	29,699	003997	ELE	34,662	kWh	
0465	Butler Hall	29,699	004000	CHW	482,889	mBtu	
0465	Butler Hall	29,699	004004	HHW	99,446	mBtu	
0467	Biological Sciences Building - East	62,273	001543	ELE	196,332	kWh	
0467	Biological Sciences Building - East	62,273	003851	CHW	1,203,745	mBtu	# (1)
0467	Biological Sciences Building - East	62,273	003862	HHW	96,043	mBtu	
0468	Evans Library	712,093	000304	ELE	262,844	kWh	
0468	Evans Library	712,093	000318	ELE	139,990	kWh	
0468	Evans Library	712,093	000319	ELE	94,345	kWh	
0468	Evans Library	712,093	000320	ELE	80,378	kWh	
0468	Evans Library	712,093	006429	ELE	84,646	kWh	
0468	Evans Library	712,093	003701	CHW	1,823,307	mBtu	
0468	Evans Library	712,093	003895	CHW	2,122,165	mBtu	
0468	Evans Library	712,093	003903	CHW	491,815	mBtu	
0468	Evans Library	712,093	003911	CHW	1,276,562	mBtu	*
0468	Evans Library	712,093	003712	HHW	90,848	mBtu	
0468	Evans Library	712,093	003899	HHW	288,787	mBtu	
0468	Evans Library	712,093	003907	HHW	47,054	mBtu	
0468	Evans Library	712,093	003922	HHW	33,534	mBtu	*
0468	Evans Library	712,093	005303	HHW	27,407	mBtu	
0469	Central Campus Parking Garage	251,304	000306	ELE	46,998	kWh	
0469	Central Campus Parking Garage	2,844	003716	CHW	78,418	mBtu	
0469	Central Campus Parking Garage	2,844	003720	HHW	4,287	mBtu	
0470	Glasscock History Bldg	39,887	006407	ELE	19,096	kWh	
0470	Glasscock History Bldg	39,887	006638	CHW	323,921	mBtu	
0470	Glasscock History Bldg	39,887	006642	HHW	3,592	mBtu	
0471	Pavilion	40,062	001455	ELE	36,048	kWh	
0471	Pavilion	40,062	002769	CHW	351,065	mBtu	
0471	Pavilion	40,062	002780	HHW	2,657	mBtu	(2)
0472	Animal Industries	44,856	009042	ELE	44,317	kWh	
0472	Animal Industries	44,856	009109	CHW	787,403	mBtu	
0472	Animal Industries	44,856	009113	HHW	1,521	mBtu	
0473	Williams Administration Building	69,898	007945	ELE	52,240	kWh	
0473	Williams Administration Building	69,898	007946	CHW	746,560	mBtu	
0473	Williams Administration Building	69,898	007947	HHW	80,784	mBtu	
0474	YMCA Building	36,035	007524	ELE	26,591	kWh	
0474	YMCA Building	36,035	007525	CHW	255,882	mBtu	
0474	YMCA Building	36,035	007526	HHW	7,211	mBtu	
0476	Francis Hall	36,850	008015	ELE	36,063	kWh	*
0476	Francis Hall	36,850	008033	CHW	641,693	mBtu	
0476	Francis Hall	36,850	008034	HHW	4	mBtu	
0477	Anthropology Building	51,592	001558	ELE	28,968	kWh	
0477	Anthropology Building	51,592	003664	CHW	699,537	mBtu	
0477	Anthropology Building	51,592	003668	HHW	14,377	mBtu	
0478	Scoates Hall	62,228	007961	ELE	52,479	kWh	(2)
0478	Scoates Hall	62,228	007968	CHW	618,320	mBtu	(2)
0478	Scoates Hall	62,228	007969	HHW	46,995	mBtu	(2)
0480	Bolton Hall	39,686	006845	ELE	31,691	kWh	
0480	Bolton Hall	39,686	007012	CHW	268,832	mBtu	
0480	Bolton Hall	39,686	007016	HHW	38,706	mBtu	

Table I-1 July 2016 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
0481	Heaton Hall	13,640	005712	ELE	NA	kWh	*
0481	Heaton Hall	13,640	007531	CHW	281,475	mBtu	
0481	Heaton Hall	13,640	007535	HHW	150,827	mBtu	
0482	Fermier Hall	19,074	005779	ELE	25,585	kWh	
0482	Fermier Hall	19,074	005878	CHW	312,976	mBtu	
0482	Fermier Hall	19,074	005881	HHW	45,214	mBtu	
0483	Thompson Hall	81,404	003688	ELE	59,653	kWh	
0483	Thompson Hall	81,404	003887	CHW	382,137	mBtu	# (1)
0483	Thompson Hall	81,404	003891	HHW	13,698	mBtu	
0484	Chemistry Building	205,393	007152	ELE	97,243	kWh	
0484	Chemistry Building	205,393	007556	ELE	13,484	kWh	
0484	Chemistry Building	205,393	007557	ELE	94,116	kWh	
0484	Chemistry Building	205,393	007559	ELE	183,793	kWh	
0484	Chemistry Building	205,393	007028	CHW	4,181,859	mBtu	
0484	Chemistry Building	205,393	007223	CHW	6,349,525	mBtu	
0484	Chemistry Building	205,393	007032	HHW	319,241	mBtu	# (1)
0484	Chemistry Building	205,393	007227	HHW	660,736	mBtu	
0490	Halbouty Geosciences Building	120,874	006691	ELE	67,444	kWh	
0490	Halbouty Geosciences Building	120,874	006695	ELE	104,720	kWh	
0490	Halbouty Geosciences Building	120,874	006896	CHW	1,905,487	mBtu	
0490	Halbouty Geosciences Building	120,874	006913	CHW	963,366	mBtu	
0490	Halbouty Geosciences Building	120,874	006900	HHW	281,745	mBtu	# (1)
0490	Halbouty Geosciences Building	120,874	006917	HHW	171,386	mBtu	
0492	Civil Engineering Building	56,537	005783	ELE	69,244	kWh	
0492	Civil Engineering Building	56,537	005950	CHW	419,246	mBtu	# (1)
0492	Civil Engineering Building	56,537	005954	HHW	148,108	mBtu	
0495	Sbisa Dining Hall	94,233	000352	ELE	125,213	kWh	
0495	Sbisa Dining Hall	94,233	000353	ELE	84,510	kWh	
0495	Sbisa Dining Hall	94,233	001951	CHW	1,925,334	mBtu	
0495	Sbisa Dining Hall	94,233	001957	HHW	197,545	mBtu	
0496	Utilities & Energy Services Central Office	46,110	007706	ELE	12,550	kWh	(2)
0496	Utilities & Energy Services Central Office	46,110	006929	CHW	226,827	mBtu	(2)
0496	Utilities & Energy Services Central Office	46,110	006933	HHW	22,519	mBtu	(2)
0499	Engineering Innovation Center	28,339	001561	ELE	22,624	kWh	
0499	Engineering Innovation Center	28,339	002672	CHW	119,300	mBtu	* (2)
0499	Engineering Innovation Center	28,339	002683	HHW	9,454	mBtu	* (2)
0501	Concrete Materials Laboratory	9,600	005791	ELE	9,008	kWh	*
0506	Nagle Hall	32,306	001484	ELE	11,579	kWh	(2)
0506	Nagle Hall	32,306	003619	CHW	544,431	mBtu	
0506	Nagle Hall	32,306	003623	HHW	7,914	mBtu	
0507	Veterinary Medical Science Building	69,367	003013	ELE	86,036	kWh	*
0507	Veterinary Medical Science Building	69,367	003640	CHW	1,958,881	mBtu	*
0507	Veterinary Medical Science Building	69,367	003644	HHW	381,695	mBtu	*
0508	Veterinary Teaching Hospital	96,416	003022	ELE	99,060	kWh	
0508-1026	Veterinary Teaching Hospital and Veterinary Medicine Administration	191,096	004166	CHW	2,567,809	mBtu	
0508-1026	Veterinary Teaching Hospital and Veterinary Medicine Administration	191,096	004170	HHW	284,372	mBtu	
0511	Heep Laboratory Building	40,476	005787	ELE	66,763	kWh	
0511	Heep Laboratory Building	40,476	005821	CHW	654,750	mBtu	# (1)
0511	Heep Laboratory Building	40,476	005825	HHW	148,681	mBtu	
0512	All Faiths Chapel	8,999	004340	ELE	7,449	kWh	
0512	All Faiths Chapel	8,999	004288	CHW	130,433	mBtu	
0512	All Faiths Chapel	8,999	004293	HHW	24,437	mBtu	# (1)
0513	Doherty Building	42,336	000299	ELE	63,743	kWh	
0513	Doherty Building	42,336	002898	CHW	1,196,887	mBtu	
0513	Doherty Building	42,336	002902	HHW	206,318	mBtu	
0514	Munnerlyn Astronomy & Space Sciences Engineering	22,134	007558	ELE	14,818	kWh	
0514	Munnerlyn Astronomy & Space Sciences Engineering	22,134	007487	CHW	149,757	mBtu	
0514	Munnerlyn Astronomy & Space Sciences Engineering	22,134	007491	HHW	2,033	mBtu	
0516	Computing Services Center	30,014	005259	ELE	466,919	kWh	
0516	Computing Services Center	30,014	003959	CHW	1,513,654	mBtu	
0516	Computing Services Center	30,014	003963	HHW	1	mBtu	
0520	Beutel Health Center	63,318	003785	ELE	69,795	kWh	(2)
0520	Beutel Health Center	63,318	003933	CHW	513,464	mBtu	
0520	Beutel Health Center	63,318	003944	HHW	36,050	mBtu	
0521	Heldenfels Hall	104,949	001547	ELE	95,880	kWh	
0521	Heldenfels Hall	104,949	002962	CHW	1,518,399	mBtu	
0521	Heldenfels Hall	104,949	002973	HHW	161,958	mBtu	
0524	Blocker building	257,953	001545	ELE	210,648	kWh	
0524	Blocker building	257,953	002914	CHW	1,694,496	mBtu	
0524	Blocker building	257,953	002918	HHW	3,037	mBtu	(2)

Table I-1 July 2016 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
0548	Clements Residence Hall	62,156	000048	ELE	30,193	kWh	
0548	Clements Residence Hall	62,156	002729	CHW	1,272,903	mBtu	
0548	Clements Residence Hall	62,156	002740	HHW	360,910	mBtu	
0549	Haas Residence Hall	69,668	001398	ELE	44,076	kWh	
0549	Haas Residence Hall	69,668	002983	CHW	1,245,733	mBtu	
0549	Haas Residence Hall	69,668	002994	HHW	583,440	mBtu	
0550	McFadden Residence Hall	62,156	000339	ELE	34,898	kWh	
0550	McFadden Residence Hall	62,156	002188	CHW	1,109,299	mBtu	
0550	McFadden Residence Hall	62,156	002192	HHW	397,316	mBtu	
0652	Neeley Residence Hall	69,668	000056	ELE	42,424	kWh	
0652	Neeley Residence Hall	69,668	002147	CHW	709,365	mBtu	# (1)
0652	Neeley Residence Hall	69,668	002151	HHW	191,244	mBtu	# (1)
0653	Hobby Residence Hall	62,156	000057	ELE	33,840	kWh	
0653	Hobby Residence Hall	62,156	002401	CHW	923,370	mBtu	
0653	Hobby Residence Hall	62,156	002405	HHW	285,865	mBtu	
0682	Wisenbaker Engineering Research Center	177,704	005246	ELE	270,827	kWh	
0682	Wisenbaker Engineering Research Center	177,704	003879	CHW	2,430,524	mBtu	
0682	Wisenbaker Engineering Research Center	177,704	003883	HHW	120,065	mBtu	
0740	McNew Laboratory	20,904	005874	ELE	48,408	kWh	
0740	McNew Laboratory	20,904	005974	CHW	513,444	mBtu	
0740	McNew Laboratory	20,904	005968	HHW	74,199	mBtu	# (1)
0806	Soil Testing Labs	5,544	006875	ELE	27,621	kWh	
0815	Entomology Research Lab	17,618	005799	ELE	30,440	kWh	
0815	Entomology Research Lab	17,618	006043	CHW	150,097	mBtu	
0880	TVMC-Small Animal Building	3,260	005958	CHW	41,293	mBtu	# (1)
0880	TVMC-Small Animal Building	3,260	005962	HHW	24	mBtu	(2)
0972	Laboratory Animal Care Building	52,178	007063	ELE	144,851	kWh	
0972	Laboratory Animal Care Building	52,178	007067	ELE	55,041	kWh	
0972	Laboratory Animal Care Building	52,178	007071	CHW	4,025,071	mBtu	
0972	Laboratory Animal Care Building	52,178	006991	HHW	96,318	mBtu	
1020	Vivarium III	12,234	005857	ELE	23,875	kWh	
1020	Vivarium III	12,234	005997	CHW	284,226	mBtu	
1020	Vivarium III	12,234	006001	HHW	8,187	mBtu	
1026	Veterinary Medicine Administration	94,680	006072	ELE	138,268	kWh	
1026	Veterinary Medicine Administration	94,680	006049	CHW	1,631,523	mBtu	
1026	Veterinary Medicine Administration	98,680	006053	HHW	276,895	mBtu	* (2)
1041	Texas Vet Med Diagnostic Lab	55,169	001466	ELE	98,569	kWh	*
1041	Texas Vet Med Diagnostic Lab	55,169	001539	ELE	82,114	kWh	*
1041	Texas Vet Med Diagnostic Lab	55,169	003817	CHW	1,312,828	mBtu	*
1041	Texas Vet Med Diagnostic Lab	55,169	004137	CHW	2,266,894	mBtu	*
1041	Texas Vet Med Diagnostic Lab	55,169	003821	HHW	50,106	mBtu	*
1041	Texas Vet Med Diagnostic Lab	55,169	004130	HHW	169,719	mBtu	*
1042	Forest Science Laboratory Building	9,632	006036	ELE	37,413	kWh	
1085	Veterinary Small Animal Hospital	103,440	004136	ELE	247,612	kWh	
1085	Veterinary Small Animal Hospital	103,440	003656	CHW	2,952,864	mBtu	
1085	Veterinary Small Animal Hospital	103,440	003660	HHW	184,410	mBtu	
1089	Utilities Energy Office Annex	2,937	006964	ELE	5,841	kWh	
1146	Biological Control Facility	13,492	005795	ELE	37,314	kWh	(2)
1146	Biological Control Facility	13,492	005887	CHW	192,693	mBtu	
1146	Biological Control Facility	13,492	005891	HHW	33,217	mBtu	
1156	Physical Plant Administration & Shops	101,704	007483	ELE	161,994	kWh	
1156	Physical Plant Administration & Shops	101,704	007679	CHW	650,489	mBtu	(2)
1156	Physical Plant Administration & Shops	101,704	007683	HHW	93,210	mBtu	
1184	Veterinary Anatomic Pathology	17,223	001445	ELE	55,931	kWh	
1184	Veterinary Anatomic Pathology	17,223	006995	CHW	919,419	mBtu	
1184	Veterinary Anatomic Pathology	17,223	006999	HHW	109,784	mBtu	(2)
1194	Veterinary Large Animal Hospital	140,865	005256	ELE	110,517	kWh	
1194	Veterinary Large Animal Hospital	140,865	003016	ELE	64,038	kWh	
1194	Veterinary Large Animal Hospital	140,865	007455	ELE	42,575	kWh	
1194	Veterinary Large Animal Hospital	140,865	003648	CHW	3,381,683	mBtu	
1194	Veterinary Large Animal Hospital	140,865	007456	CHW	330,554	mBtu	
1194	Veterinary Large Animal Hospital	140,865	003652	HHW	493,886	mBtu	
1194	Veterinary Large Animal Hospital	140,865	007457	HHW	31,049	mBtu	
1197	Veterinary Research Building	114,666	006355	ELE	76,639	kWh	(2)
1197	Veterinary Research Building	114,666	006359	ELE	34,854	kWh	
1197	Veterinary Research Building	114,666	006062	CHW	4,235,799	mBtu	
1197	Veterinary Research Building	114,666	006066	HHW	414,865	mBtu	
1416	Hullabaloo Residence Hall	253,452	007845	ELE	161,940	kWh	
1416	Hullabaloo Residence Hall	253,452	007846	CHW	1,615,289	mBtu	
1416	Hullabaloo Residence Hall	253,452	007847	HHW	107,540	mBtu	

Table I-1 July 2016 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
1450	University Apartments - Laundry at the Gardens	1,428	006885	ELE	6,915	kWh	
1451	University Apartments - The Gardens J	33,535	006981	ELE	24,037	kWh	
1453	University Apartments - The Gardens L	33,535	006884	ELE	24,847	kWh	
1454	University Apartments - The Gardens F	33,535	006980	ELE	21,924	kWh	*
1455	University Apartments - The Gardens G	33,535	006882	ELE	23,592	kWh	*
1456	University Apartments - The Gardens H	33,535	007962	ELE	27,951	kWh	
1457	University Apartments - The Gardens M	33,535	007503	ELE	25,732	kWh	
1458	University Apartments - The Gardens N	33,535	007504	ELE	23,630	kWh	
1459	University Apartments - The Gardens P	33,535	007505	ELE	26,954	kWh	
1460	University Apartments - The Gardens Q	33,535	007506	ELE	23,918	kWh	
1497	Utilities & Energy Services Business Office	3,480	007082	ELE	4,042	kWh	
1497	Utilities & Energy Services Business Office	3,480	006341	CHW	38,971	mBtu	
1497	Utilities & Energy Services Business Office	3,480	006345	HHW	4	mBtu	
1501	Kleberg Center	165,031	007449	ELE	288,232	kWh	
1501	Kleberg Center	165,031	002624	CHW	2,477,127	mBtu	(2)
1501	Kleberg Center	165,031	002628	HHW	538,930	mBtu	
1502	Heep Center	158,979	001556	ELE	273,631	kWh	
1502	Heep Center	158,979	002599	CHW	3,591,674	mBtu	
1502	Heep Center	158,979	002603	HHW	293,460	mBtu	
1503	Cater-Mattil Hall	27,958	007977	ELE	80,680	kWh	
1503	Cater-Mattil Hall	27,958	008001	CHW	881,220	mBtu	
1504	Reynolds Medical Sciences Building	169,859	003975	ELE	270,230	kWh	
1504	Reynolds Medical Sciences Building	169,859	003989	CHW	3,129,710	mBtu	
1504	Reynolds Medical Sciences Building	169,859	003993	HHW	338,653	mBtu	
1505	Rosenthal Meat Science & Technology Center	30,889	003627	ELE	145,839	kWh	
1505	Rosenthal Meat Science & Technology Center	30,889	002573	CHW	297,396	mBtu	
1505	Rosenthal Meat Science & Technology Center	30,889	002577	HHW	21,398	mBtu	
1506	Horticulture-Forest Science Building	118,648	001544	ELE	172,737	kWh	
1506	Horticulture-Forest Science Building	118,648	003967	CHW	1,399,780	mBtu	
1506	Horticulture-Forest Science Building	118,648	003971	HHW	102,737	mBtu	
1507	Biochemistry-Biophysics Building	166,079	001459	ELE	179,287	kWh	
1507	Biochemistry-Biophysics Building	166,079	001460	ELE	160,872	kWh	
1507	Biochemistry-Biophysics Building	166,079	003025	CHW	3,687,426	mBtu	
1507	Biochemistry-Biophysics Building	166,079	003029	HHW	561,188	mBtu	
1508	Price Hobgood Ag. Engineering Research Lab	27,666	005638	ELE	29,082	kWh	
1508	Price Hobgood Ag. Engineering Research Lab	27,666	006005	CHW	274,392	mBtu	
1508	Price Hobgood Ag. Engineering Research Lab	27,666	006009	HHW	486	mBtu	
1509	Medical Sciences Library	84,183	000350	ELE	96,839	kWh	
1509	Medical Sciences Library	84,183	003777	CHW	994,303	mBtu	(1)
1509	Medical Sciences Library	84,183	003781	HHW	34,699	mBtu	
1510	Wehner Building	259,681	006849	ELE	202,814	kWh	
1510	Wehner Building	259,681	006685	ELE	255,340	kWh	
1510	Wehner Building	259,681	002687	CHW	2,479,987	mBtu	
1510	Wehner Building	259,681	002691	HHW	175,092	mBtu	
1511	West Campus Library Facility	68,125	004342	ELE	101,765	kWh	
1511	West Campus Library Facility	68,125	004313	CHW	985,731	mBtu	
1511	West Campus Library Facility	68,125	004318	HHW	123,352	mBtu	
1512	Southern Crop Improvement Greenhouse	48,154	005931	ELE	117,878	kWh	(1)
1513	Borlaug Center for Southern Crop Improvement	68,739	005802	ELE	314,875	kWh	
1513	Borlaug Center for Southern Crop Improvement	68,739	005936	CHW	2,248,103	mBtu	
1513	Borlaug Center for southern Crop Improvement	68,739	005895	HHW	142,986	mBtu	
1518	TX School of Rural Public Health A	69,079	005273	ELE	80,147	kWh	
1519	TX School of Rural Public Health B	24,761	005274	ELE	54,399	kWh	#, (1)
1520	TX School of Rural Public Health C	13,264	005275	ELE	103,545	kWh	#, (1)
1518-1519-1520	TX School of Rural Public Health A,B,C	107,104	005294	CHW	2,277,600	mBtu	
1518-1519-1520	TX School of Rural Public Health A,B,C	107,104	005298	HHW	157,007	mBtu	(1)
1525	Nuclear Magnetic Resonance Facility	37,282	006718	ELE	89,149	kWh	
1525	Nuclear Magnetic Resonance Facility	37,282	006715	CHW	1,353,789	mBtu	
1525	Nuclear Magnetic Resonance Facility	37,282	006716	HHW	349,978	mBtu	
1530	Interdisciplinary Life Sciences Building	218,540	006286	ELE	440,631	kWh	
1530	Interdisciplinary Life Sciences Building	218,540	006288	ELE	230,488	kWh	
1530	Interdisciplinary Life Sciences Building	218,540	006290	CHW	6,176,025	mBtu	
1530	Interdisciplinary Life Sciences Building	218,540	006294	HHW	840,699	mBtu	
1535	Agriculture and Life Sciences Building	168,353	007205	ELE	118,698	kWh	
1535	Agriculture and Life Sciences Building	168,353	007206	CHW	984,296	mBtu	
1535	Agriculture and Life Sciences Building	168,353	007207	HHW	18,882	mBtu	
1536	AgriLife Services Building	80,907	007571	ELE	48,969	kWh	
1536	AgriLife Services Building	80,907	007572	CHW	389,668	mBtu	
1536	AgriLife Services Building	80,907	007573	HHW	14,461	mBtu	

Table I-1 July 2016 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
1538	Agriculture Program Visitors Center	12,923	007209	ELE	12,557	kWh	
1538	Agriculture Program Visitors Center	12,923	007210	CHW	122,681	mBtu	
1538	Agriculture Program Visitors Center	12,923	007211	HHW	9,197	mBtu	
1540	Physical Education Activity Program Building	116,900	007881	ELE	66,811	kWh	
1540	Physical Education Activity Program Building	116,900	007878	CHW	700,204	mBtu	
1540	Physical Education Activity Program Building	116,900	007879	HHW	54,015	mBtu	
1550	Olsen Field at Bluebell Park	60,537	007560	ELE	141,647	kWh	
1554	Reed Arena	230,000	007582	ELE	170,904	kWh	
1554	Reed Arena	230,000	006243	ELE	900	kWh	#, (1)
1554	Reed Arena	230,000	006244	ELE	83,918	kWh	
1554-1558	Reed Arena and Cox-McFerrin Center	328,185	007576	CHW	3,034,314	mBtu	(1)
1554-1558	Reed Arena and Cox-McFerrin Center	328,185	007578	HHW	649,851	mBtu	
1558	Cox-McFerrin Center for Aggie Basketball	98,185	007581	ELE	92,560	kWh	
1558	Cox-McFerrin Center for Aggie Basketball	98,185	007575	CHW	663,274	mBtu	(1)
1558	Cox-McFerrin Center for Aggie Basketball	98,185	007577	HHW	204,042	mBtu	
1559	West Campus Parking Garage	1,541,457	001453	ELE	179,491	kWh	
1559	West Campus Parking Garage	13,000	004322	CHW	100,209	mBtu	(2)
1559	West Campus Parking Garage	13,000	004327	HHW	6,236	mBtu	
1560	Student Recreation Center	334,642	000363	ELE	242,114	kWh	
1560	Student Recreation Center	334,642	000366	ELE	473,975	kWh	
1560	Student Recreation Center	334,642	002933	CHW	7,158,096	mBtu	
1560	Student Recreation Center	334,642	002937	HHW	1,331,131	mBtu	
1589-1590	White Creek Apartment 1 and White Creek Apts Activity Center	176,454	009197	ELE	97,327	kWh	
1589-1590	White Creek Apartment 1 and White Creek Apts Activity Center	176,454	009198	CHW	1,016,792	mBtu	
1589-1590	White Creek Apartment 1 and White Creek Apts Activity Center	176,454	009199	HHW	68,260	mBtu	
1591	White Creek Apartment 2	179,467	008528	ELE	122,325	kWh	
1591	White Creek Apartment 2	179,467	008529	CHW	1,020,540	mBtu	
1591	White Creek Apartment 2	179,467	008533	HHW	52,892	mBtu	
1592	White Creek Apartment 3	179,467	008538	ELE	101,244	kWh	
1592	White Creek Apartment 3	179,467	008539	CHW	1,017,021	mBtu	
1592	White Creek Apartment 3	179,467	008543	HHW	80,099	mBtu	
1600	Gilchrist TTI Building	67,143	005286	ELE	56,276	kWh	
1600	Gilchrist TTI Building	67,143	002649	CHW	650,604	mBtu	
1600	Gilchrist TTI Building	67,143	002653	HHW	46,918	mBtu	
1601	International Ocean Discovery Building	86,576	006351	ELE	135,346	kWh	(2)
1601	International Ocean Discovery Building	86,576	006382	CHW	367,773	mBtu	(2)
1601	International Ocean Discovery Building	86,576	008144	CHW	90,116	mBtu	(2)
1601	International Ocean Discovery Building	86,576	008145	HHW	10,622	mBtu	(2)
1604	Offshore Technology Research Center	40,014	006659	ELE	88,818	kWh	(2)
1604	Offshore Technology Research Center	40,014	006660	ELE	0	kWh	(2)
1604	Offshore Technology Research Center	40,014	008142	CHW	663,110	mBtu	
1604	Offshore Technology Research Center	40,014	008143	HHW	74,578	mBtu	
1606	George Bush Presidential Library & Museum	121,678	000244	ELE	122,686	kWh	
1606	George Bush Presidential Library & Museum	121,678	002808	CHW	1,793,469	mBtu	
1606	George Bush Presidential Library & Museum	121,678	002812	HHW	312,789	mBtu	
1607	Allen Building	133,327	000243	ELE	92,634	kWh	
1607	Allen Building	133,327	002800	CHW	839,018	mBtu	
1607	Allen Building	133,327	002804	HHW	10,983	mBtu	
1608	Annenberg Presidential Conference Center	65,688	000245	ELE	72,597	kWh	
1608	Annenberg Presidential Conference Center	65,688	002761	CHW	1,178,188	mBtu	
1608	Annenberg Presidential Conference Center	65,688	002765	HHW	272,696	mBtu	
1609	TTI Headquarters	66,707	006495	ELE	58,994	kWh	
1609	TTI Headquarters	66,707	006496	CHW	587,632	mBtu	
1609	TTI Headquarters	66,707	006497	HHW	31,812	mBtu	
1611	Engineering Research Building	68,807	008462	ELE	193,609	kWh	
1611	Engineering Research Building	68,807	008463	CHW	2,980,662	mBtu	
1611	Engineering Research Building	68,807	008467	HHW	421,479	mBtu	
1800	General Services Complex	203,369	005441	ELE	198,903	kWh	
1800	General Services Complex	203,369	005468	CHW	1,432,258	mBtu	
1800	General Services Complex	203,369	005472	HHW	47,757	mBtu	
1810	Office of the State Chemist Building	31,735	009073	ELE	61,318	kWh	#, (1)
1810	Office of the State Chemist Building	31,735	005460	CHW	868,737	mBtu	
1810	Office of the State Chemist Building	31,735	005464	HHW	70,850	mBtu	
1811	Vet Med Research Bldg Addition	52,993	006705	ELE	224,853	kWh	
1811	Vet Med Research Bldg Addition	52,993	006706	CHW	2,356,871	mBtu	
1811	Vet Med Research Bldg Addition	52,993	006707	HHW	360,972	mBtu	
1812-1813-1814	Skanksa Vet Complex	390,422	009216	CHW	5,484,764	mBtu	*
1812-1813-1814	Skanksa Vet Complex	390,422	009217	HHW	798,004	mBtu	*
1900	Texas Institute for Genomic Medicine	34,120	005548	ELE	92,799	kWh	*
1900	Texas Institute for Genomic Medicine	34,120	005545	CHW	2,408,813	mBtu	
1900	Texas Institute for Genomic Medicine	34,120	005546	HHW	271,906	mBtu	#, (1)

Table I-1 July 2016 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
1904	Texas A&M Institute for Preclinical Studies A	113,559	006364	ELE	271,081	kWh	
1904	Texas A&M Institute for Preclinical Studies A	113,559	006365	CHW	4,243,909	mBtu	
1904	Texas A&M Institute for Preclinical Studies A	113,559	006366	HHW	587,122	mBtu	
1910	National Center for Therapeutics Manufacturing	149,924	007517	ELE	207,353	kWh	
1910	National Center for Therapeutics Manufacturing	149,924	007518	ELE	167,793	kWh	
1910	National Center for Therapeutics Manufacturing	149,924	007519	CHW	6,102,497	mBtu	#, (1)
1910	National Center for Therapeutics Manufacturing	149,924	007520	HHW	1,076,166	mBtu	
1911	Multi-Species Research Building	21,000	009138	ELE	25,388	kWh	
1911	Multi-Species Research Building	21,000	009129	CHW	617,715	mBtu	
1911	Multi-Species Research Building	21,000	009133	HHW	151,143	mBtu	#, (1)
10226	NCTM Manufacturing Building	113,397	007648	CHW	5,308,170	mBtu	
10226	NCTM Manufacturing Building	113,397	007649	HHW	844,878	mBtu	
10226	NCTM Manufacturing Building	113,397	008133	HHW	71,105	mBtu	

1 mBtu = 1 000 Btu

NA: Not available
Monthly consumption in blue: Modified values
* : Missing data
# : Questionable data
(1): Consumption estimated and documented in the report *Part II - Data Analysis: Energy Use Estimation and Observations Section 2*
(2): Observation(s) documented in the report *Part II - Data Analysis: Energy Use Estimation and Observations Section 3*
(3): Missing data or changed consumption levels due to construction

II. Data Analysis: Energy Use Estimation and Observation

II-1 Meters with Missing Energy Consumption Data

During the month of July 2016, 59 meters in 30 buildings and complexes have missing daily data. The missing data have been filled in using consumption models based on the past data if available or using linear interpolation or some sort of average, and the monthly consumption has been estimated with the filled-in daily consumption. Table II-1 is the list of meters with missing data.

Table II-1 Meters with missing data during July 2016

Building No.	Building Name	MeterID	Type	Unit	Original Monthly Consumption	Estimated Monthly Consumption	# of Days	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
293	Appelt Residence Hall	002062	CHW	mBtu	884,354	898,030	1	LI																														
293	Appelt Residence Hall	002066	HHW	mBtu	261,789	265,754	1	LI																														
353	Bright Aerospace Building	001569	ELE	kWh	138,160	157,777	4																												M	M	M	M
353	Bright Aerospace Building	002746	CHW	mBtu	1,443,792	**	4																												A	A	A	A
353	Bright Aerospace Building	002757	HHW	mBtu	41,752	47,309	4																												A	A	A	A
367	Kyle Field	000336	ELE	kWh	146,345	159,092	3																													A	A	A
385-A	CE TTI Office & Lab Building - Pi R Square	004240	CHW	mBtu	96,182	222,628	18														M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
385-A	CE TTI Office & Lab Building - Pi R Square	004245	HHW	mBtu	1,293	2,178	18														M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
394	Underwood Residence Hall	002117	CHW	mBtu	NA	***	31																															
394	Underwood Residence Hall	002121	HHW	mBtu	NA	***	31																															
400	Spence Hall Dorm 1	009170	CHW	mBtu	891,674	*	1																															
400	Spence Hall Dorm 1	009171	HHW	mBtu	344,516	*	1																															
401	Kiest Hall Dorm 2	009151	CHW	mBtu	1,024,193	*	1																															
401	Kiest Hall Dorm 2	009152	HHW	mBtu	247,293	*	1																															
402	Briggs Hall Dorm 3	009205	ELE	kWh	NA	***	31																															
402	Briggs Hall Dorm 3	009206	CHW	mBtu	609,182	*	1																															
402	Briggs Hall Dorm 3	009207	HHW	mBtu	119,908	*	1																															
403	Fountain Hall Dorm 4	009222	ELE	kWh	NA	***	31																															
403	Fountain Hall Dorm 4	009223	CHW	mBtu	503,691	*	1																															
403	Fountain Hall Dorm 4	009224	HHW	mBtu	122,405	*	1																															
404	Gainer Hall Dorm 5	009227	ELE	kWh	NA	***	31																															
404	Gainer Hall Dorm 5	009228	CHW	mBtu	439,665	*	2																															
404	Gainer Hall Dorm 5	009229	HHW	mBtu	106,153	*	2																															
406	Leonard Hall - Dorm 7	008012	ELE	kWh	8,614	9,290	2																														LI	LI
419	Legett Residence Hall	000031	ELE	kWh	NA	***	31																															
419	Legett Residence Hall	002218	CHW	mBtu	NA	***	31																															
419	Legett Residence Hall	002222	HHW	mBtu	NA	***	31																															
433	Mosher Residence Hall	002485	CHW	mBtu	288,361	2,121,260	27	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
433	Mosher Residence Hall	002489	HHW	mBtu	86,053	632,151	27	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
440	Commons Hall	009237	CHW	mBtu	NA	***	31																															
440	Commons Hall	009238	HHW	mBtu	NA	***	31																															
441	Krueger Residence Hall	002504	CHW	mBtu	119,962	**	27	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M				
441	Krueger Residence Hall	002500	HHW	mBtu	0	**	27	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
443	Oceanography & Meteorology Building	006388	CHW	mBtu	850,162	1,617,098	16															M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
443	Oceanography & Meteorology Building	006392	HHW	mBtu	95,893	188,756	16															M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
462	Academic Building	005905	CHW	mBtu	2,926,419	**	15	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M															
462	Academic Building	005909	HHW	mBtu	209,379	**	15	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M															
468	Evans Library	003911	CHW	mBtu	1,276,562	*	2																															
468	Evans Library	003922	HHW	mBtu	33,534	*	2																															
476	Francis Hall	008015	ELE	kWh	26,610	36,063	8																								A	A	A	A	A	A	A	A
481	Heaton Hall	005712	ELE	kWh	NA	***	31																															
499	Engineering Innovation Center	002672	CHW	mBtu	NA	119,300	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
499	Engineering Innovation Center	002683	HHW	mBtu	NA	9,454	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
501	Concrete Materials Laboratory	005791	ELE	kWh	6,952	9,008	7	M	M	M	M	M	M	M																								
507	Veterinary Medical Science Building	003013	ELE	kWh	86,036	*	2																															
507	Veterinary Medical Science Building	003640	CHW	mBtu	NA	1,958,881	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
507	Veterinary Medical Science Building	003644	HHW	mBtu	NA	381,695	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1026	Veterinary Medicine Administration	006053	HHW	mBtu	NA	276,895	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1041	Texas Vet Med Diagnostic Lab	001466	ELE	kWh	46,270	98,569	17													A			A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
1041	Texas Vet Med Diagnostic Lab	001539	ELE	kWh	38,785	82,114	16																A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
1041	Texas Vet Med Diagnostic Lab	003817	CHW	mBtu	620,128	1,312,828	23				M	M			M		M		M		M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1041	Texas Vet Med Diagnostic Lab	004137	CHW	mBtu	1,154,623	2,266,894	22				M	M	M					M	M				M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1041	Texas Vet Med Diagnostic Lab	003821	HHW	mBtu	19,806	50,106	22						M		M	M				M	M		M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1041	Texas Vet Med Diagnostic Lab	004130	HHW	mBtu	85,477	169,719	23		M				M	M	M	M	M		M				M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1454	University Apartments - The Gardens F	006980	ELE	kWh	NA	21,294	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1455	University Apartments - The Gardens G	006882	ELE	kWh	NA	23,592	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
812-1813-181	Skanksa Vet Complex	009216	CHW	mBtu	5,484,764	*	1																															
812-1813-181	Skanksa Vet Complex	009217	HHW	mBtu	798,004	*	1																															
1900	Texas Institute for Genomic Medicine	005548	ELE	kWh	92,799	*	3														M	M	M															

* Monthly consumption evaluated from the cumulative data is not affected by the missing data.
** See Table II-2 for the estimated consumption.
*** Consumption is not estiamted because reliable consumtpion model is not available.
NA: Not available

II-2 Meters with Estimated Consumption for Problematic Data

During the month of July 2016, 33 meters in 27 buildings have estimated daily consumption because the recorded consumption is found to be problematic or questionable. For each of these meters, alternative consumption has been estimated using the best possible method. Table II-2 lists these meters with indications of the days with estimated data. Detailed descriptions for individual cases follow.

Table II-2 Meters with problematic data during July 2016

Building No.	Building Name /MeterID(s)	Type	Unit	Original Monthly Consumption	Estimated Monthly Consumption	# of days	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
353	Bright Aerospace Building																																				
	002746	CHW	mBtu	**	1,467,518	7																				A	A	A	A	A	A	A					
387	Richardson Petroleum Engineering Building																																				
	005809	HHW	mBtu	44,403	120,731	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
415	Davis-Gary Residence Hall																																				
	002532	CHW	mBtu	644,859	684,587	4		M	M	M	M																										
441	Krueger Residence Hall																																				
	002504	CHW	mBtu	**	1,243,872	4																											M	M	M	M	
	002500	HHW	mBtu	**	32,976	4																											M	M	M	M	
1402	Buzbee Leadership Learning Center																																				
	007725	CHW	mBtu	210,344	217,623	5			L	L	L	L	L																								
0406-1403	Leonard Hall - Dorm 7 and Ash LLC																																				
	007982	CHW	mBtu	691,778	658,541	7													L	L	L	L	L	L	L												
1403	H. Grady Ash, Jr. '58 Leadership Learning Center																																				
	008005	CHW	mBtu	211,298	180,613	7													L	L	L	L	L	L	L												
462	Academic Building																																				
	005905	CHW	mBtu	**	654,255	16															M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
	005909	HHW	mBtu	**	330,291	16															M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
467	Biological Sciences Building																																				
	003851	CHW	mBtu	842,171	1,203,745	22			M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M							
483	Thompson Hall																																				
	003887	CHW	mBtu	316,778	382,137	6																										M	M	M	M	M	M
484	Chemistry Building																																				
	007032	HHW	mBtu	119,518	319,241	20	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M											
490	Halbouty Geosciences Building																																				
	006900	HHW	mBtu	209,828	281,745	8																			M	M	M	M	M	M	M						
492	Civil Engineering Building																																				
	005950	CHW	mBtu	541,999	419,246	21											M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
511	Heep Laboratory Building																																				
	005821	CHW	mBtu	773,073	654,750	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
512	All Faiths Chapel																																				
	004293	HHW	mBtu	4,797	24,437	26						M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
652	Neeley																																				
	002147	CHW	mBtu	1,649,580	709,365	27					M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
	002151	HHW	mBtu	1,071,286	191,244	27					M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
740	McNew Laboratory																																				
	005968	HHW	mBtu	153	74,199	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
880	Small Animal Building																																				
	005958	CHW	mBtu	23,004	41,293	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1509	Medical Sciences Library																																				
	003777	CHW	mBtu	945,455	994,303	11	M	M	M	M	M	M	M	M																					M	M	
1512	Southern Crop Improvement Greenhouse																																				
	005931	ELE	kWh	90,627	117,878	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1519	TX School of Rural Public Health B																																				
	005274	ELE	kWh	103,545	54,399	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1520	TX School of Rural Public Health C																																				
	005275	ELE	kWh	54,399	103,545	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1518-1519-1520	TX School of Rural Public Health A, B, and C																																				
	005298	HHW	mBtu	120,007	150,007	17	M	M				M		M	M	M			M	M	M					M	M	M	M	M	M	M				M	
1554	Reed Arena																																				
	006243	ELE	kWh	37	900	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1554-1558	Reed Arena and Cox-McFerrin Center																																				
	007576	CHW	mBtu	3,585,553	3,034,314	8																							M	M	M	M	M	M	M	M	M
1558	Cox-McFerrin Center for Aggie Basketball																																				
	007575	CHW	mBtu	826,951	663,274	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1810	Office of the State Chemist Building																																				
	009073	ELE		61,318,110	61,318	31	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
1900	Texas Institute for Genomic Medicine																																				
	005546	HHW		397,192	271,906	14					M					M	M			M			M	M	M	M	M					M	M	M	M	M	
1910	National Center for Therapeutics Manufacturing																																				
	007519	CHW		5,565,292	6,102,497	3																													L	L	L
1911	Multi-Species Research Building																																				
	009133	HHW		130,962	151,143	6	L	L	L	L	L	L																										

NA: Not available
** See Table II-1 for the original consumption.

Notes: The colored cells means the consumption for the day appears to be problematic. The letter in the colored cell indicates the method for estimation. M: model, F: multiplication factor, L: linear interpolation, A: average, and C: correction of the reset cumulative reading

Bright Aerospace Building (TAMU Bldg #353)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	002746	7	7/21/2016 – 7/27/2016	Average

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption level has increased suddenly. Scattering data are observed.	7/21/2016 – 7/27/2016

Changes in sensor readings related to the detected issues

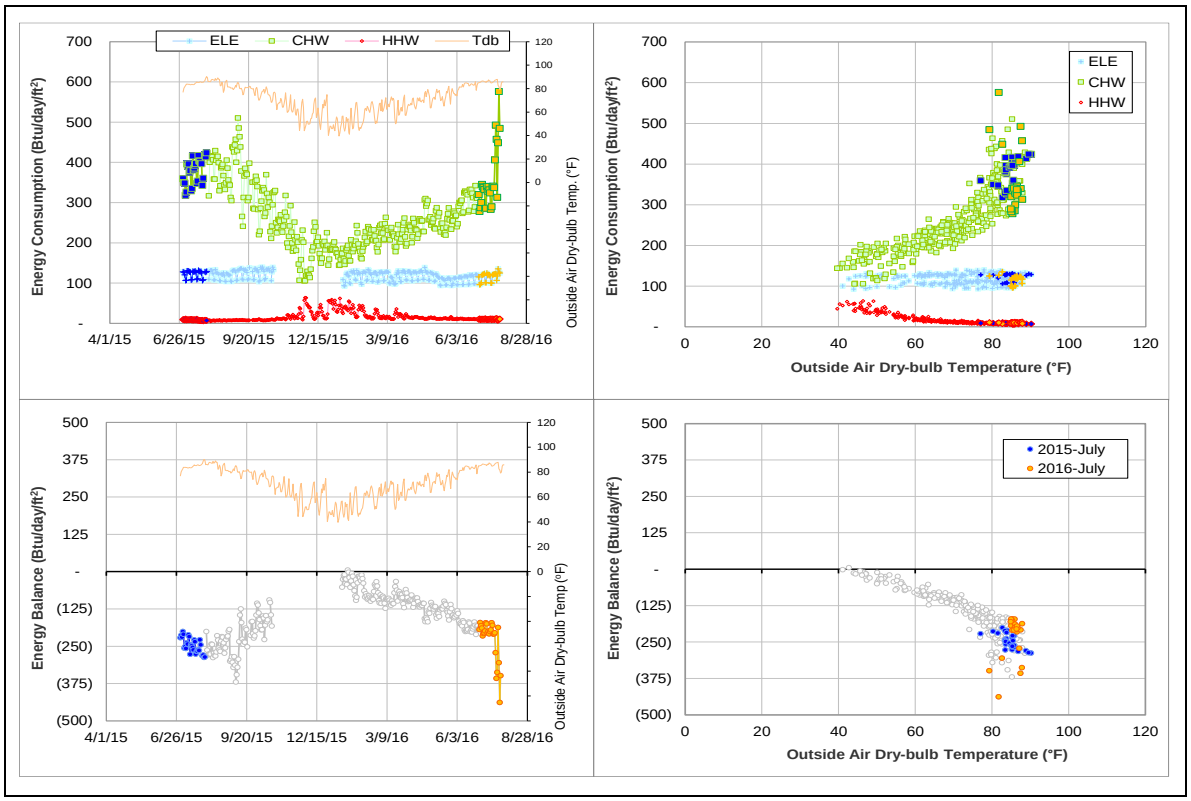
Energy Type	Meter ID	Period	Type	Description
CHW	002746	7/21/2016 – 7/27/2016	Flow Rate	Increased

Quantitative descriptions and comments

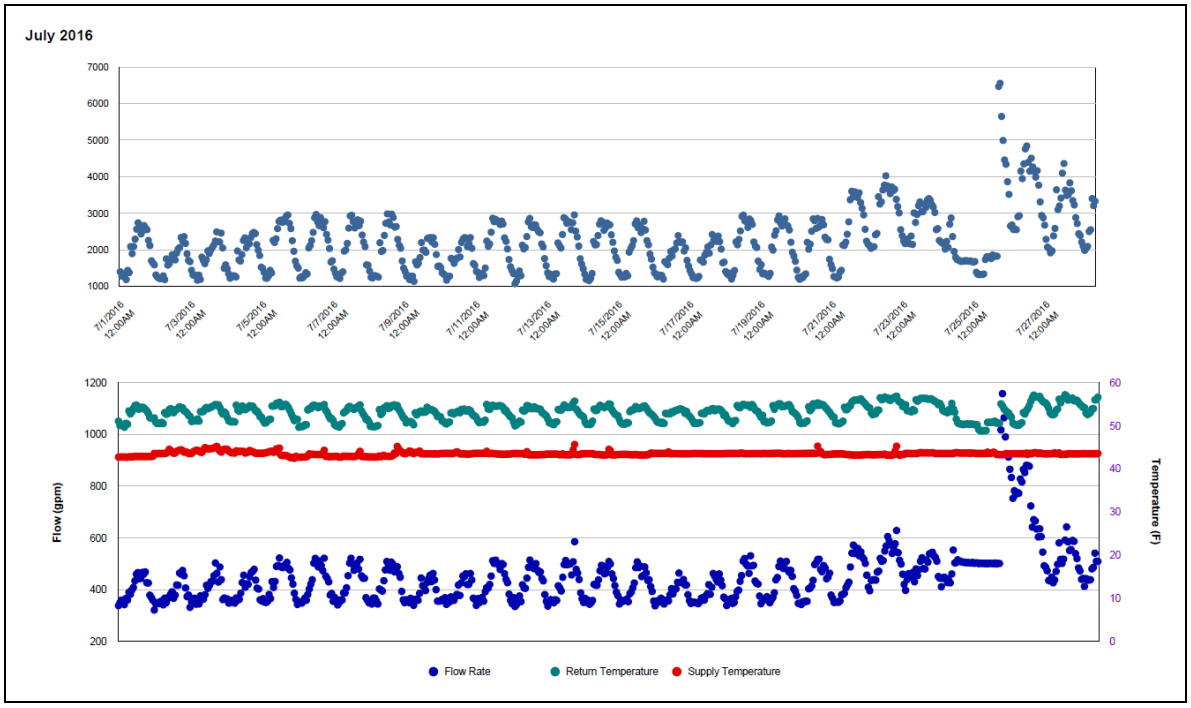
The CHW consumption increased starting from 7/21/2016, and the pattern respect to outside air temperature is scattered. This was mostly caused by the changes of the CHW flow rate. The consumption was estimated by the average of the other days in this month.

The energy balance load (EBL) of this building has varied but always been low (the cross-point temperature was between 40°F and 70°F) for years. Please see details in section II-3.

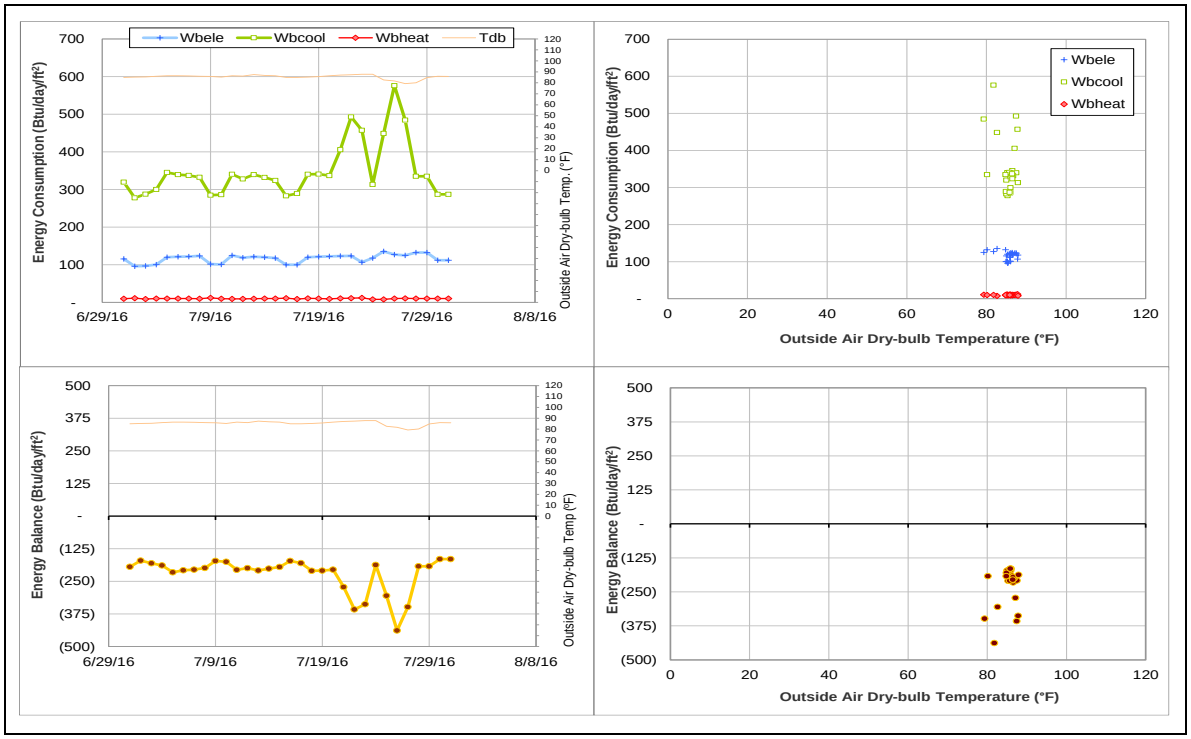
Explanatory Figure: 13 months energy balance plot with original data



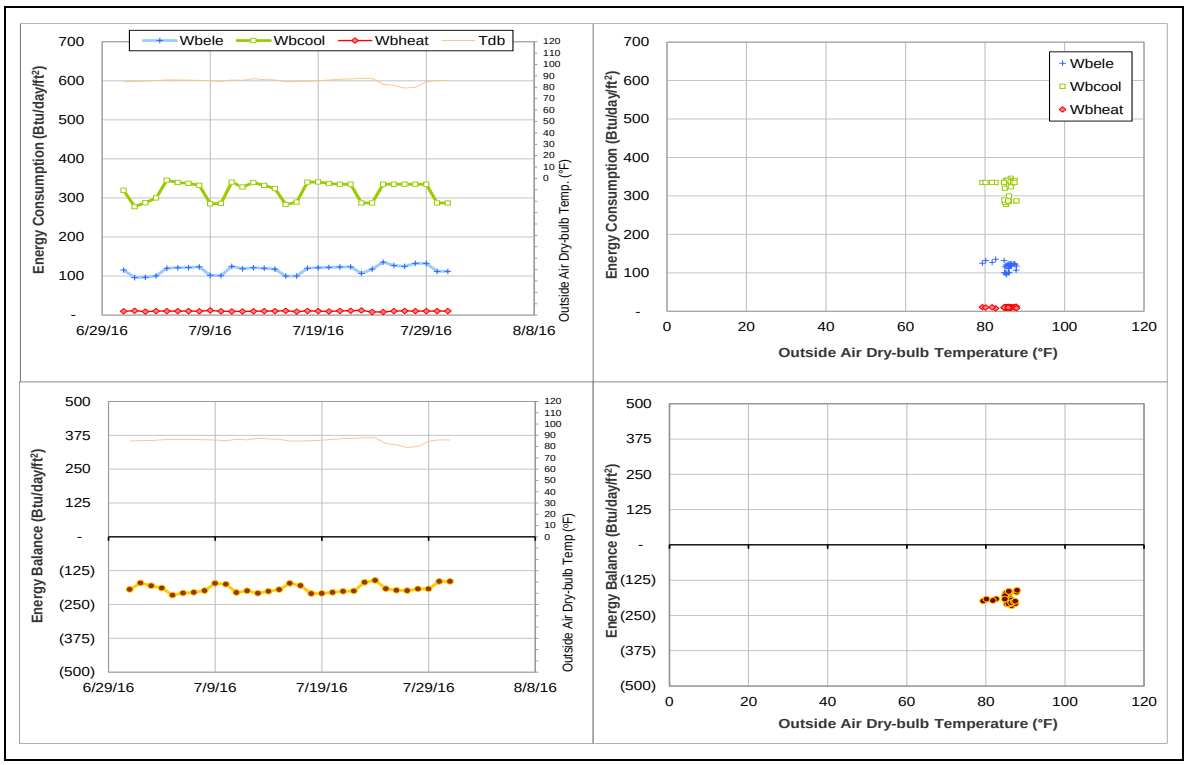
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during July 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



Richardson Petroleum Engineering Building (TAMU Bldg #387)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	005809	31	7/1/2016 – 7/31/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption level has decreased suddenly.	6/21/2016 – ongoing

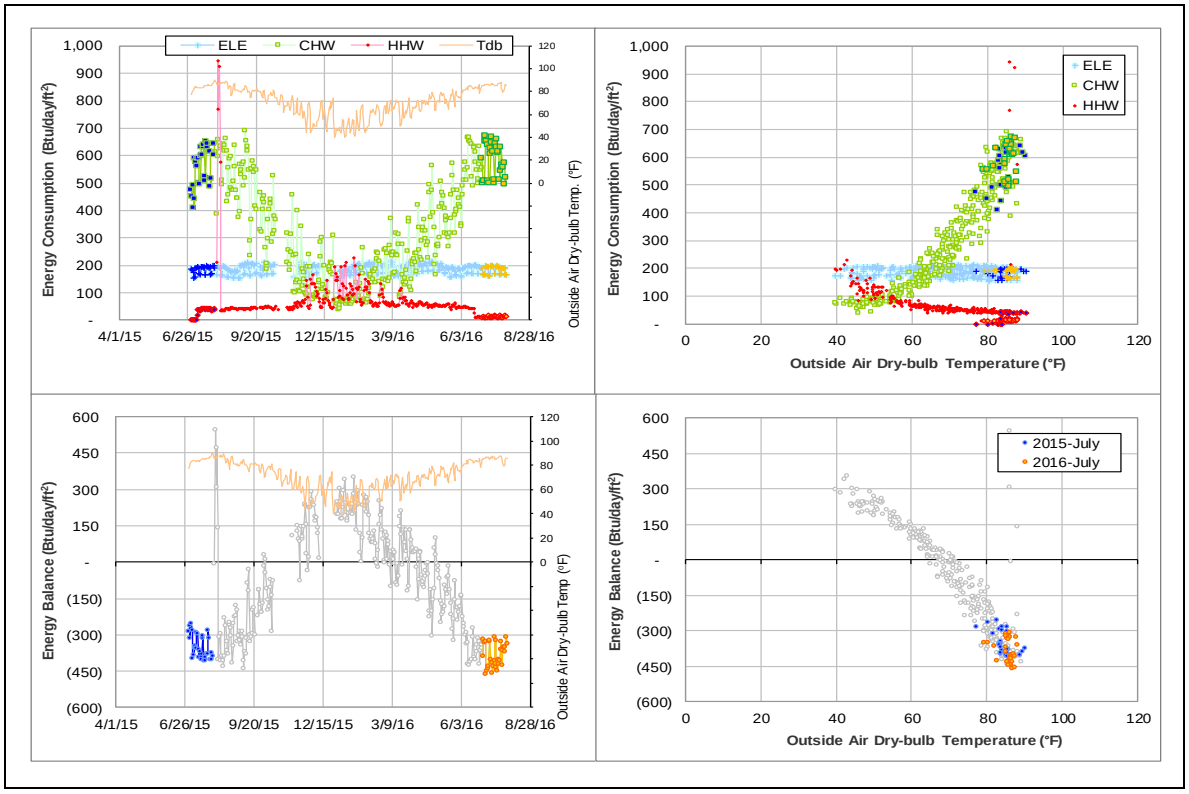
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	005809	6/21/2016 – ongoing	Return Temperature	Increased

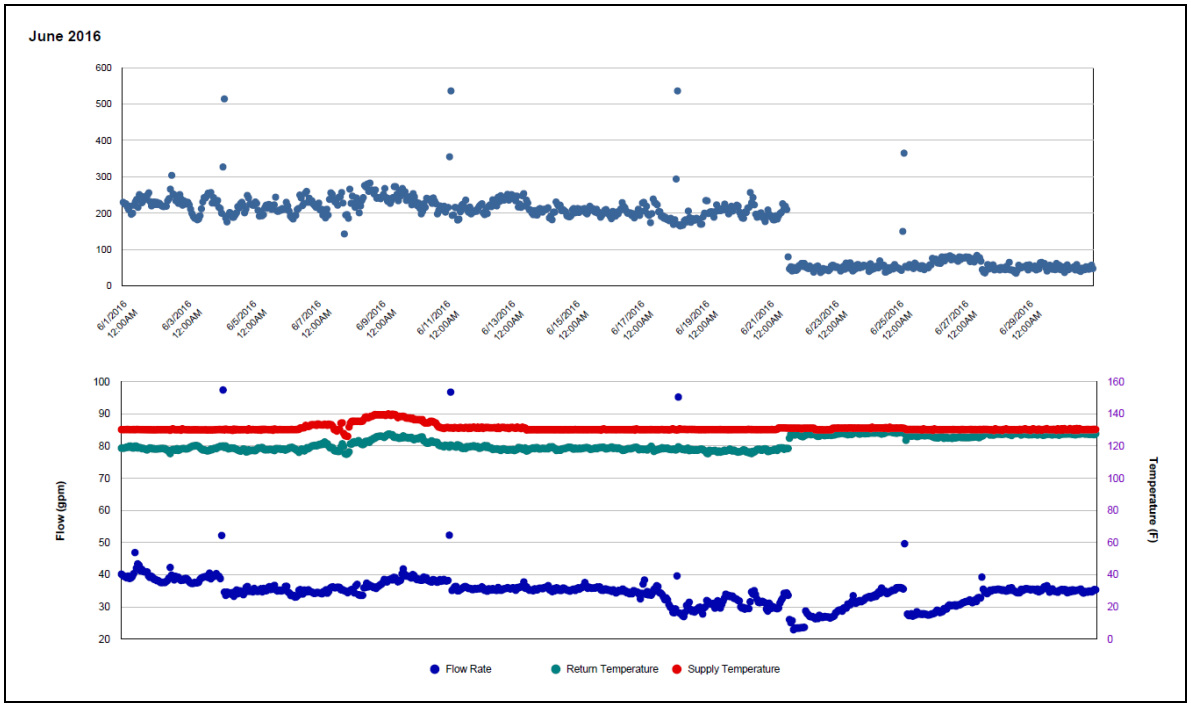
Quantitative descriptions and comments

The HHW consumption suddenly decreased by 30 Btu/day/ft^2 since 6/21/2016, as the HHW return temperature increased and the delta T decreased to be very small. The consumption was estimated by a model.

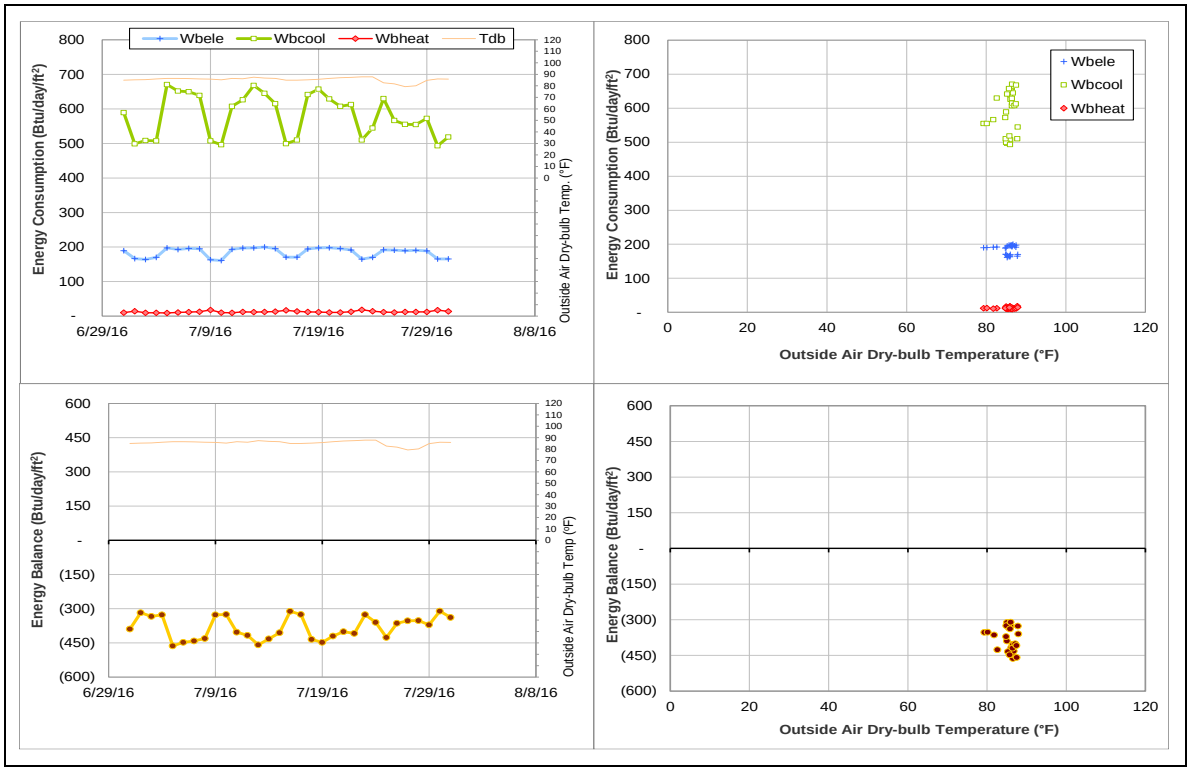
Explanatory Figure: 13 months energy balance plot with original data



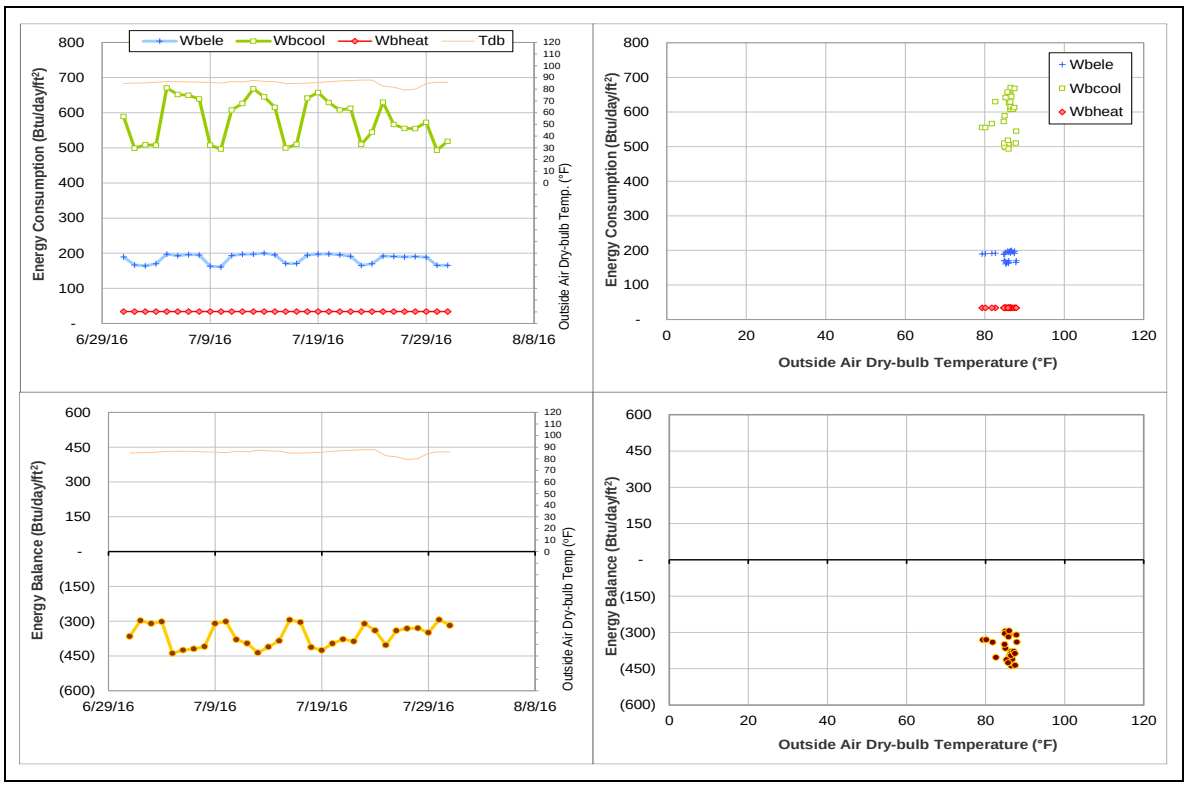
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during June 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



Davis-Gary Residence Hall (TAMU Bldg #415)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	002532	4	7/2/2016 – 7/5/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption dropped for a short period.	7/2/2016 – 7/5/2016

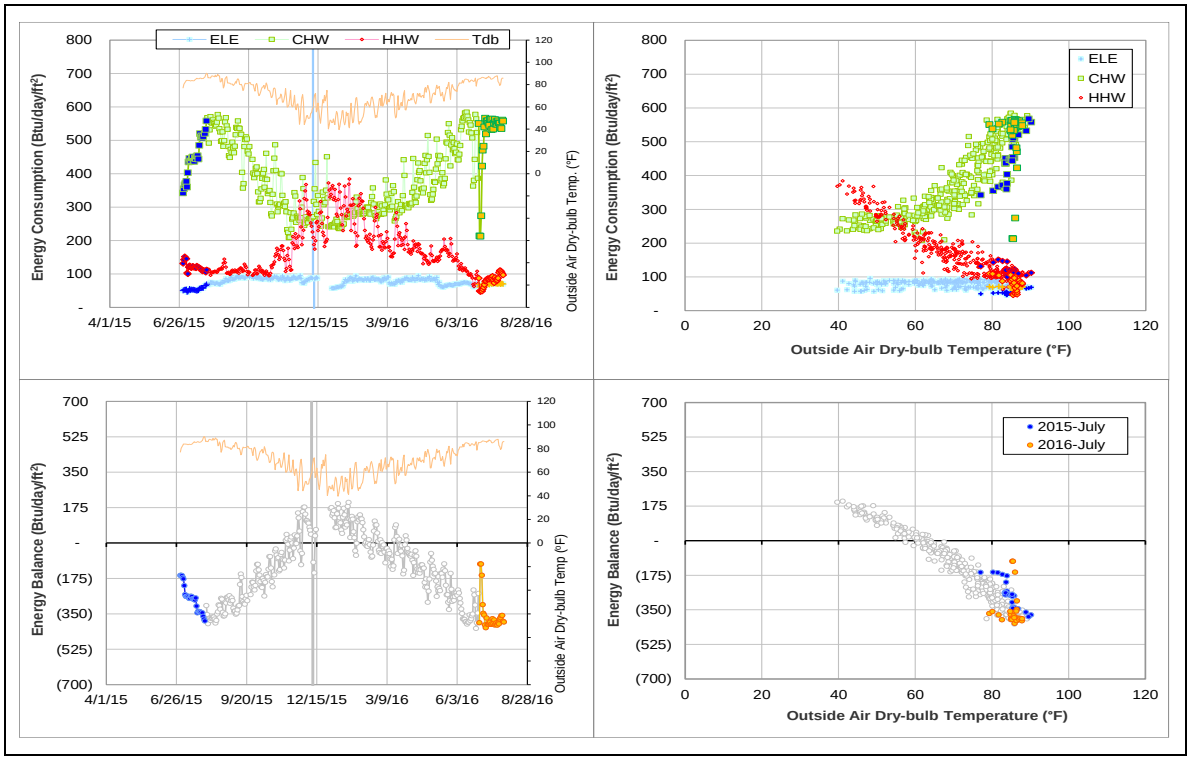
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	002532	7/2/2016 – 7/5/2016	Flow Rate	Decreased

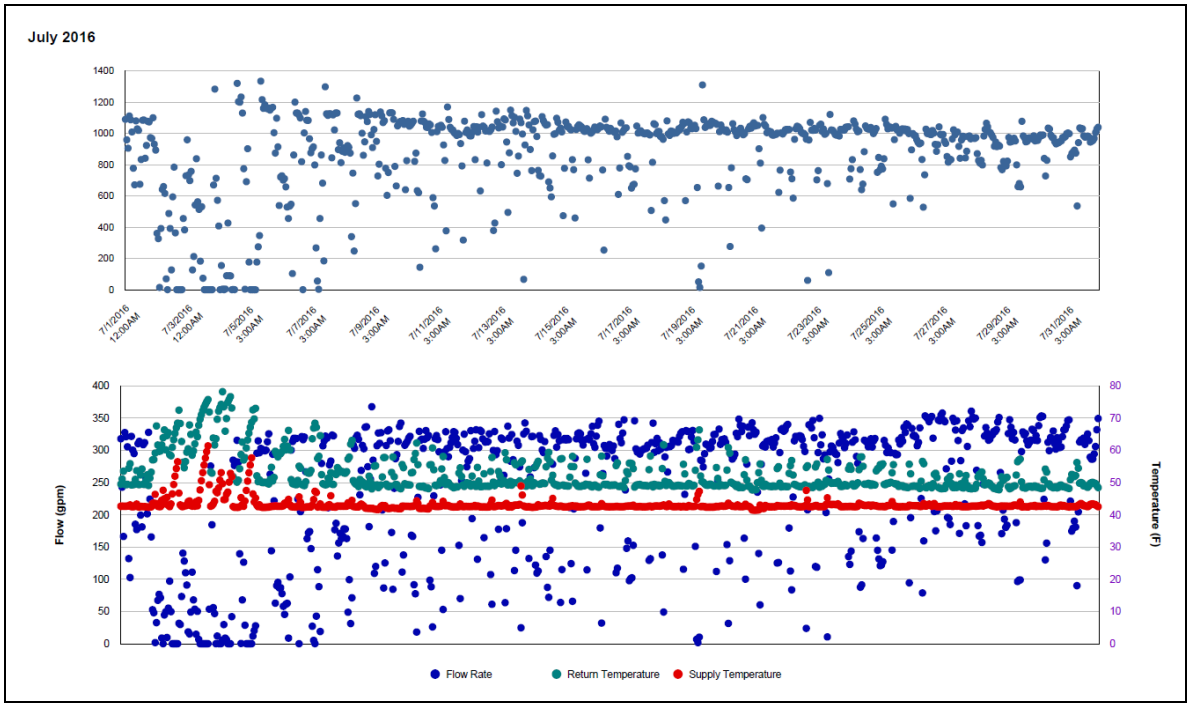
Quantitative descriptions and comments

The CHW consumption decreased by 300 Btu/day/ft^2 during 7/2/2016-7/5/2016, as the CHW flow rate decreased from 320 gpm to around 0-150 gpm. After 7/5/2016, the consumption increased back to the previous level. The consumption was estimated by a model.

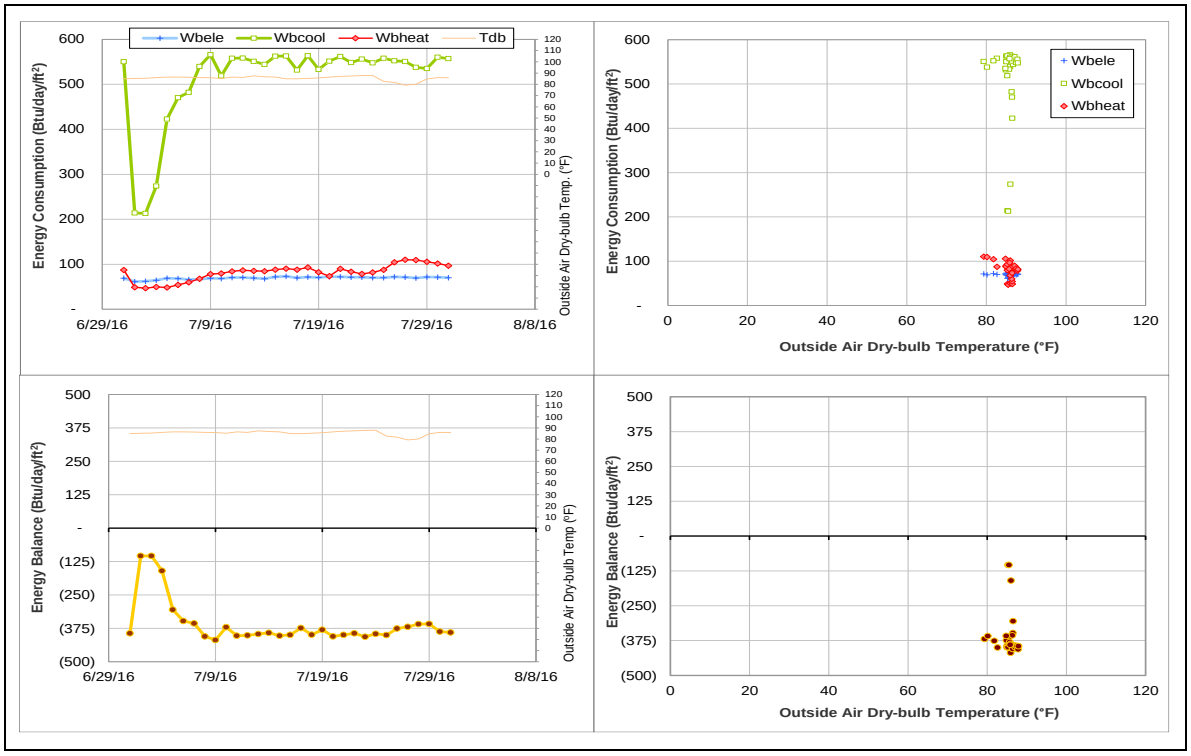
Explanatory Figure: 13 months energy balance plot with original data



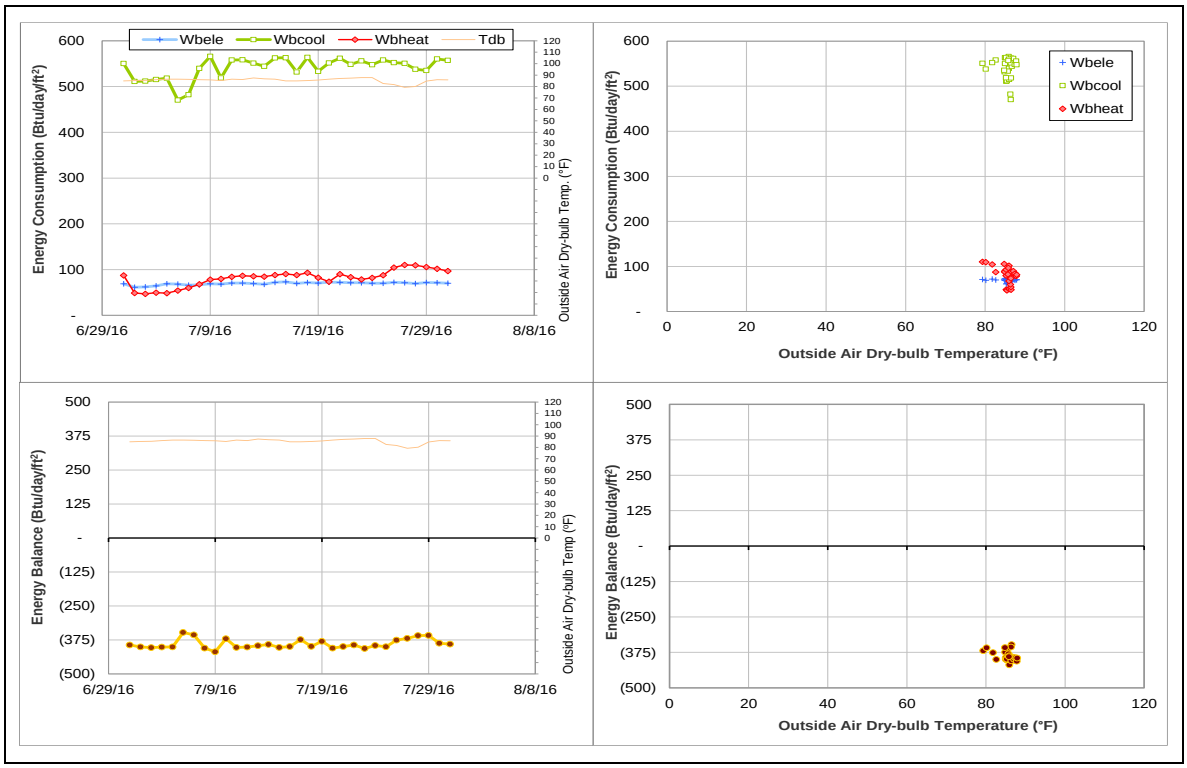
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during July 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



Krueger Residence Hall (TAMU Bldg #441)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	002504	4	7/28/2016 – 7/31/2016	Model
HHW	002500	4	7/28/2016 – 7/31/2016	Average

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	Scattering data are observed.	7/28/2016 – 7/31/2016
HHW	The metered values appear to be faulty.	7/28/2016 – 7/31/2016

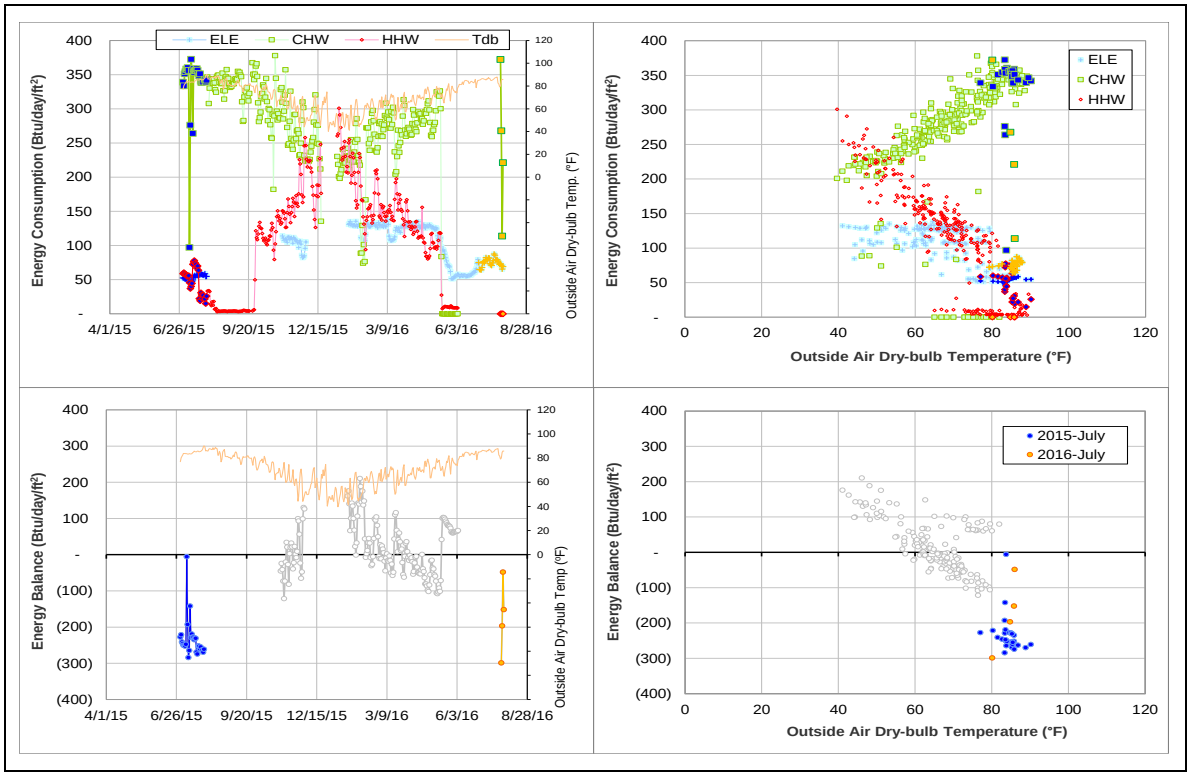
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	002504	7/28/2016 – 7/31/2016	Flow rate	Varied
HHW	002500	7/28/2016 – 7/31/2016	Flow rate	Constant value, Faulty

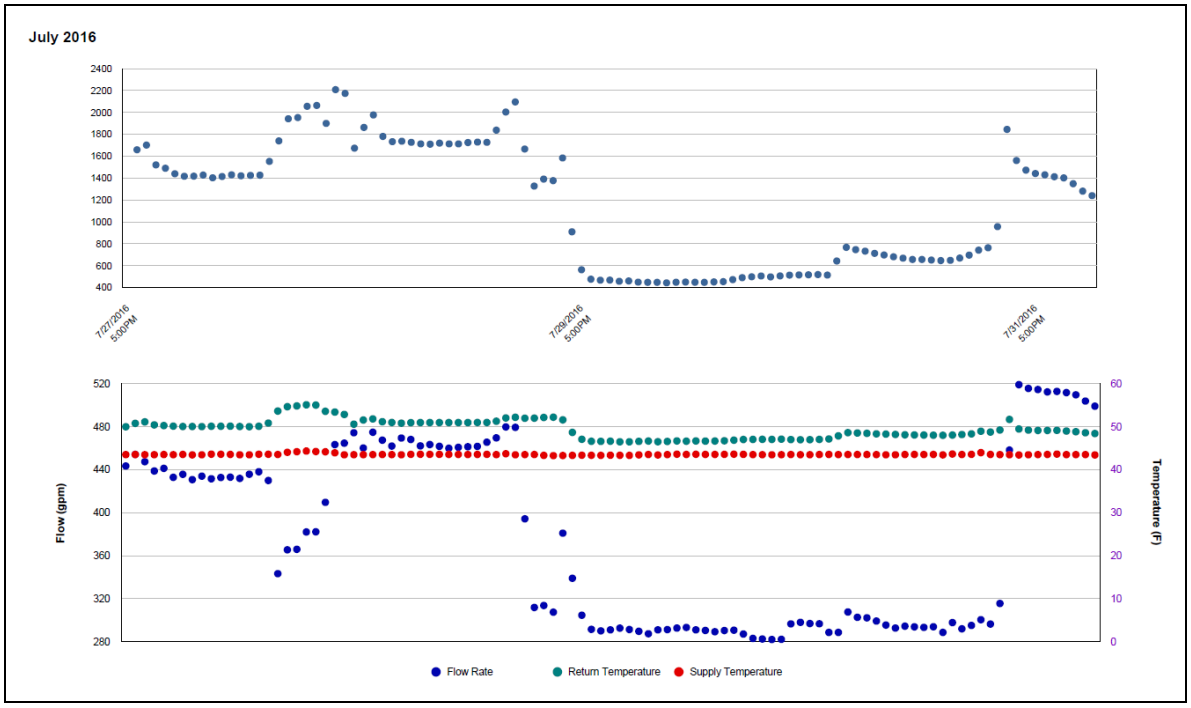
Quantitative descriptions and comments

Both the CHW and HHW consumption decreased to nearly zero on 5/16/2016. During 6/6/2016-7/27/2016, the CHW/HHW data was missing. Then on 7/28/2016-7/31/2016, the CHW consumption fluctuated in a large range between 110 and 380 Btu/day/ft^2 due to the changes of the CHW flow rate, and the HHW consumption was zero due to the faulty flow rate. The CHW consumption was estimated by a model and the HHW consumption was estimated by averaging the data during 5/17/2016 – 6/5/2016.

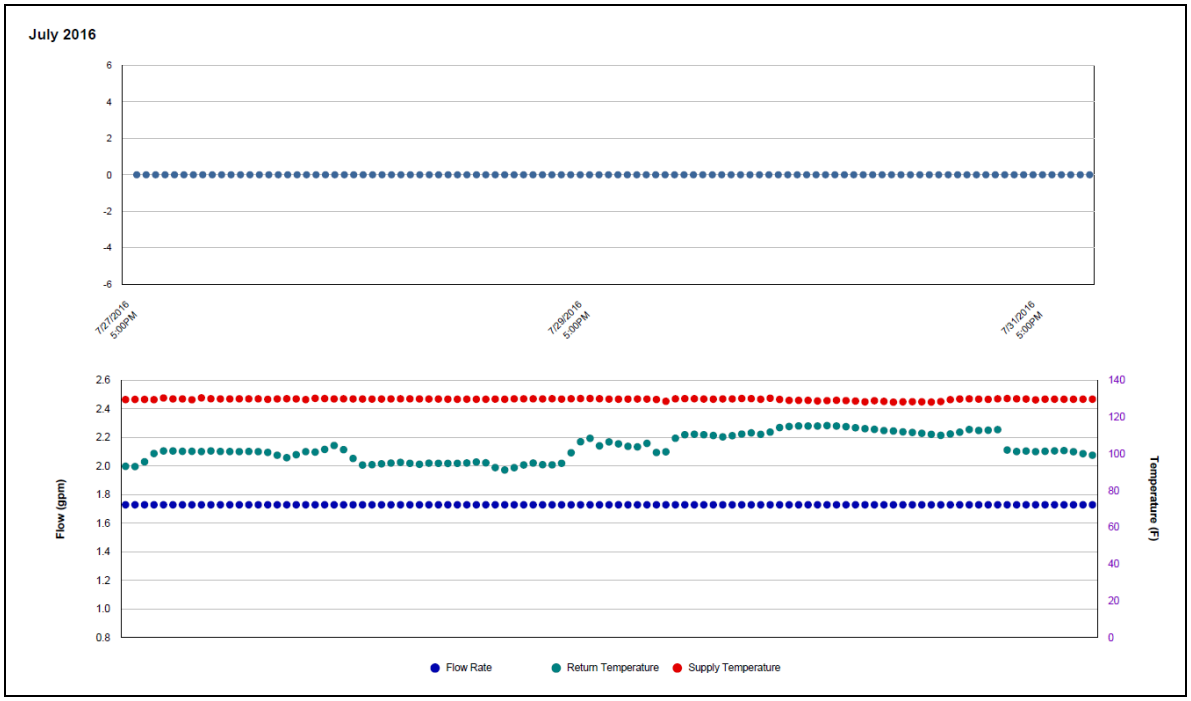
Explanatory Figure: 13 months energy balance plot with original data.



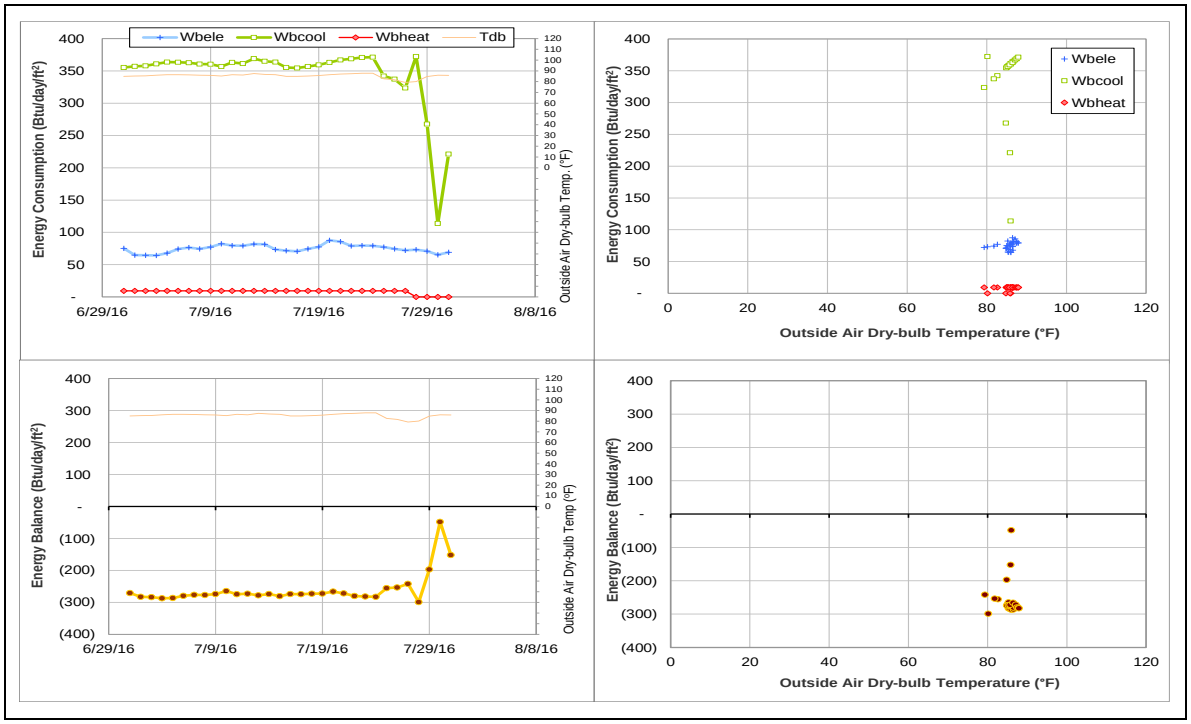
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during July 2016)



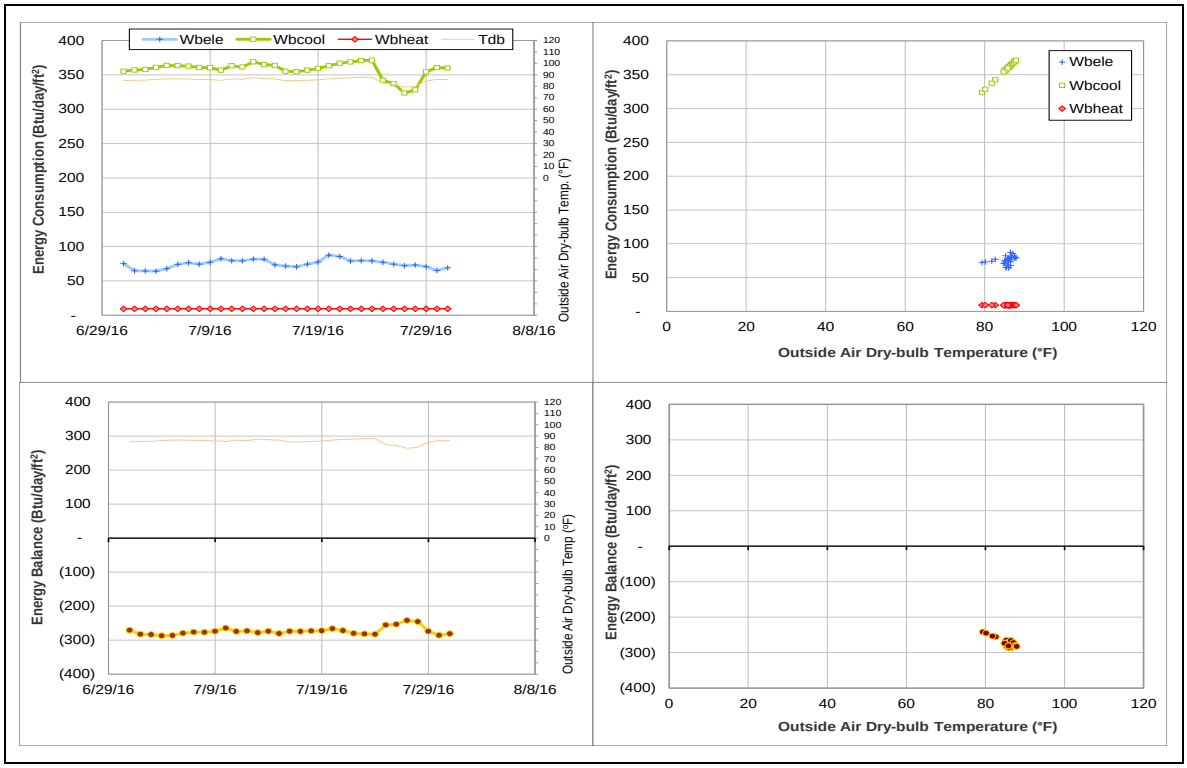
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during July 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



Buzbee Leadership Learning Center (TAMU Bldg #1402)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	007725	5	7/3/2016 – 7/7/2016	Linear Interpolation

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption dropped for a short period.	7/3/2016 – 7/7/2016

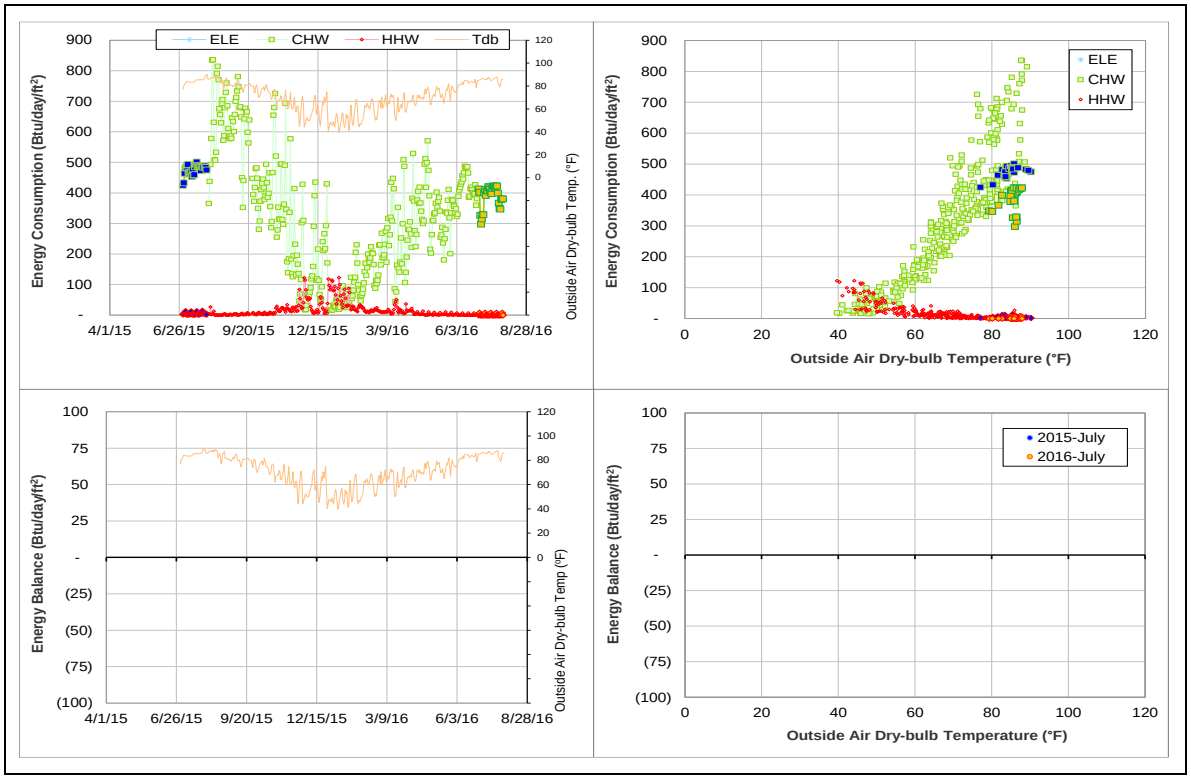
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	007725	7/3/2016 – 7/7/2016	Return Temperature	Decreased

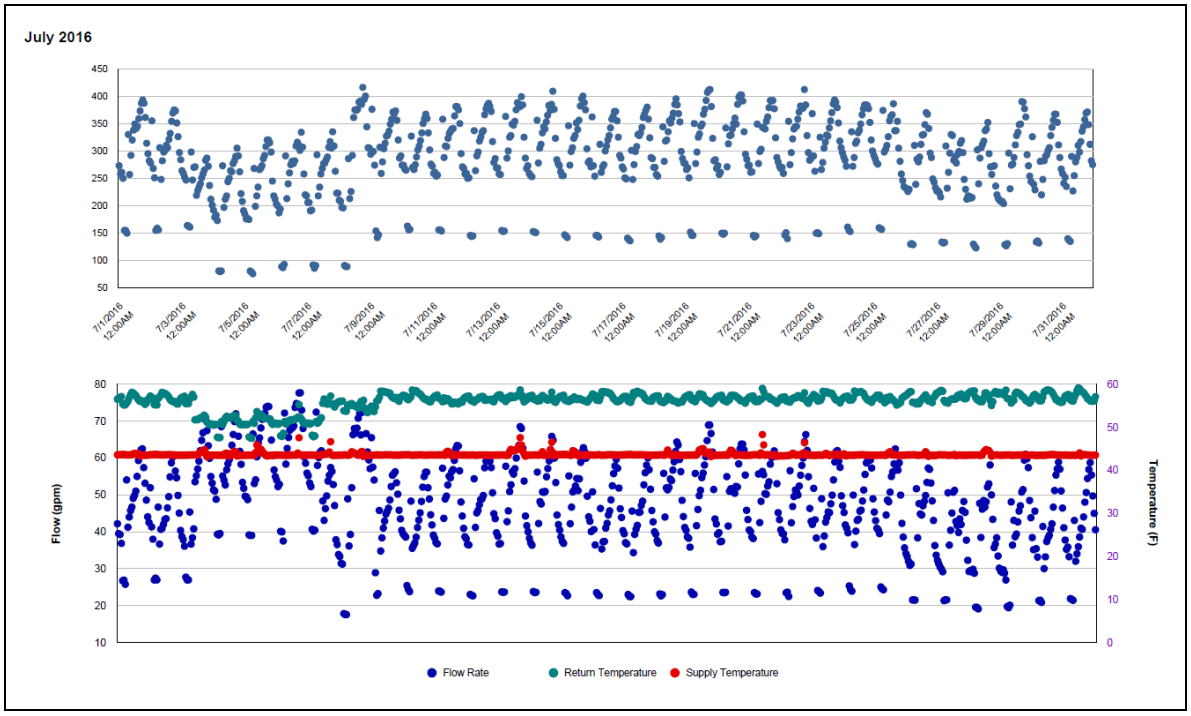
Quantitative descriptions and comments

The CHW consumption dropped by 100 Btu/day/ft^2 during 7/3/2016 – 7/7/2016, as the return temperature decreased and the delta T was smaller. The CHW consumption was estimated by linear interpolation.

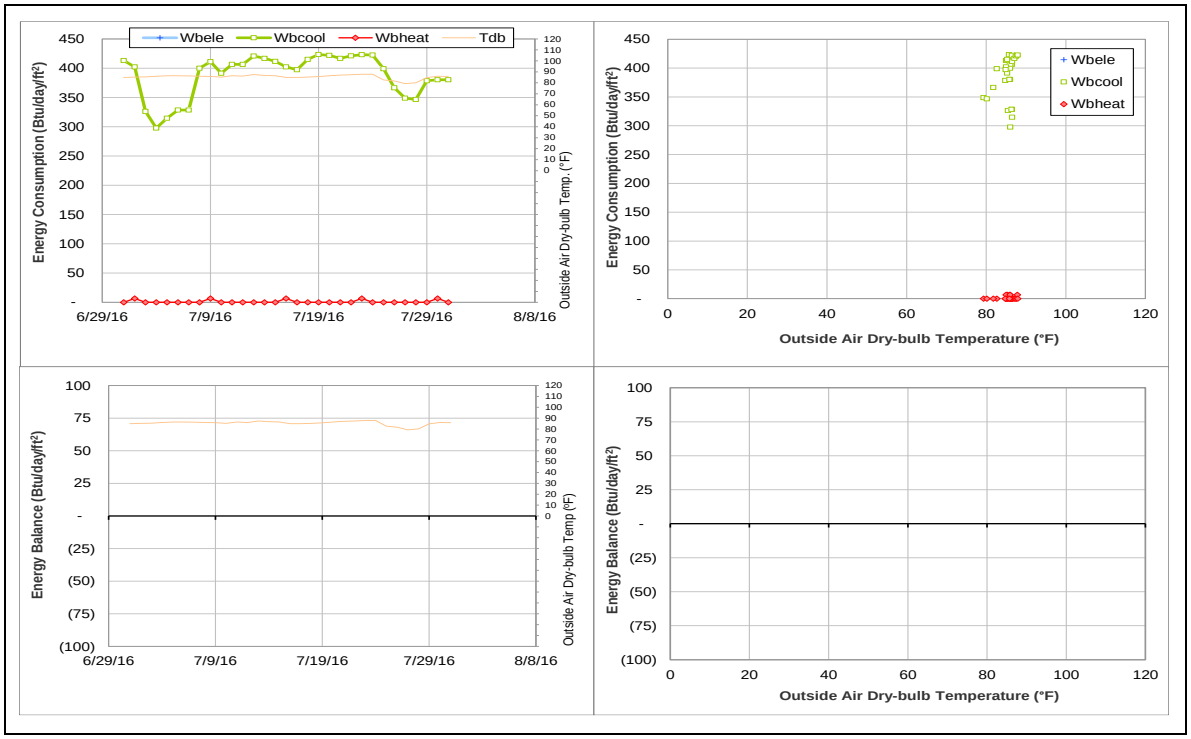
Explanatory Figure: 13 months energy balance plot with original data.



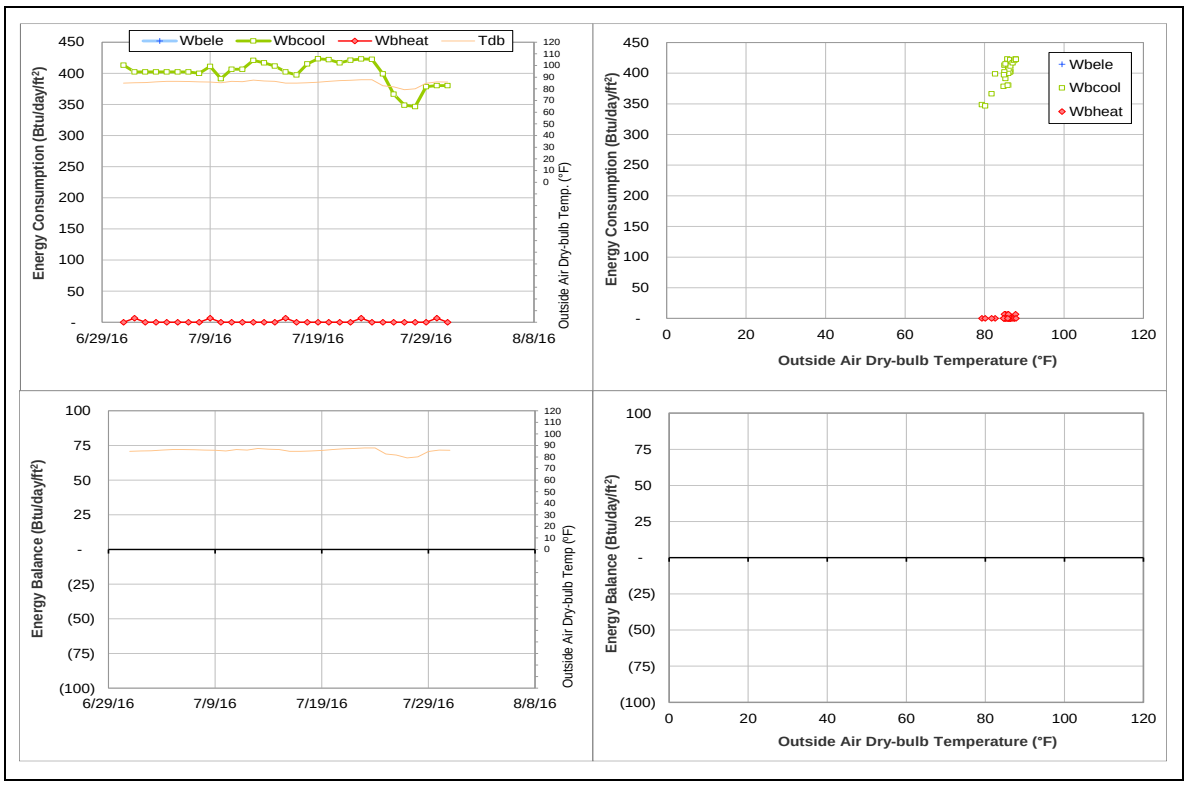
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during July 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



H. Grady Ash, Jr. '58 Leadership Learning Center (TAMU Bldg #1403)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	008005	7	7/13/2016 – 7/19/2016	Linear Interpolation
CHW	007982	7	7/13/2016 – 7/19/2016	Linear Interpolation

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption increased for a short period.	7/13/2016 – 7/19/2016
CHW	The consumption increased for a short period.	7/13/2016 – 7/19/2016

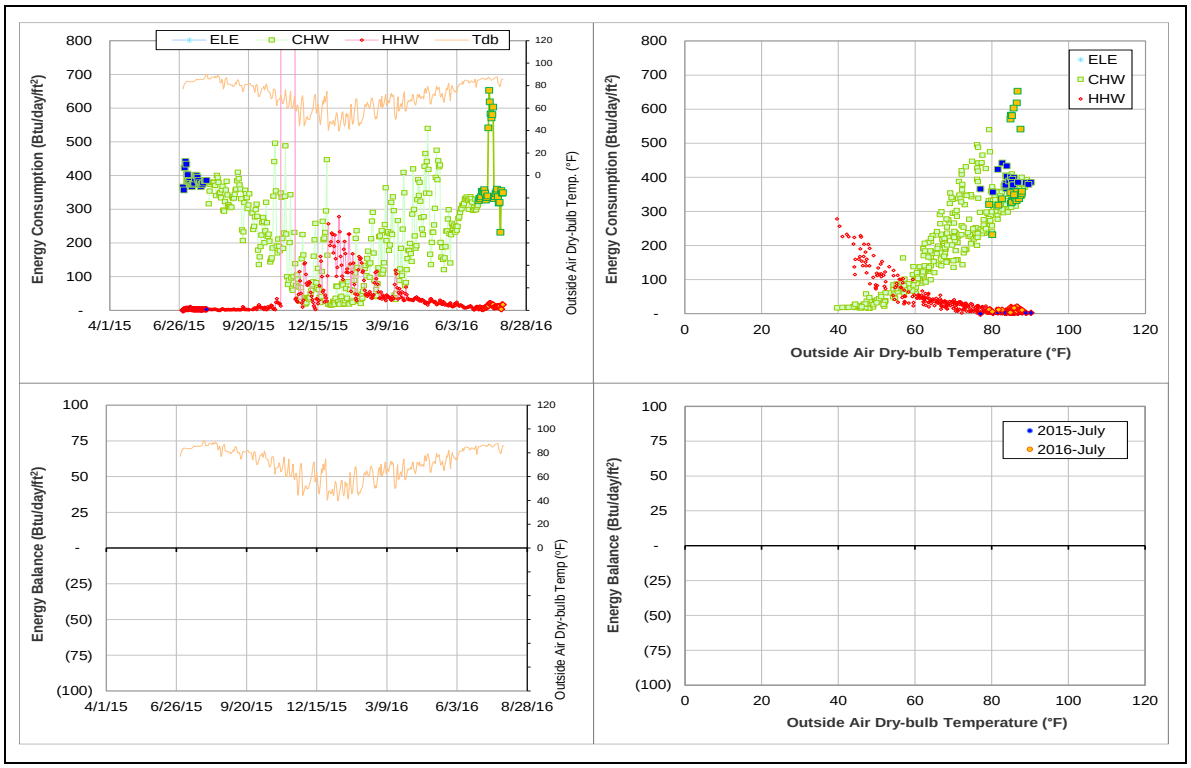
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	008005	7/13/2016 – 7/19/2016	Flow rate	Increased
CHW	007982	7/13/2016 – 7/19/2016	Flow rate	Increased

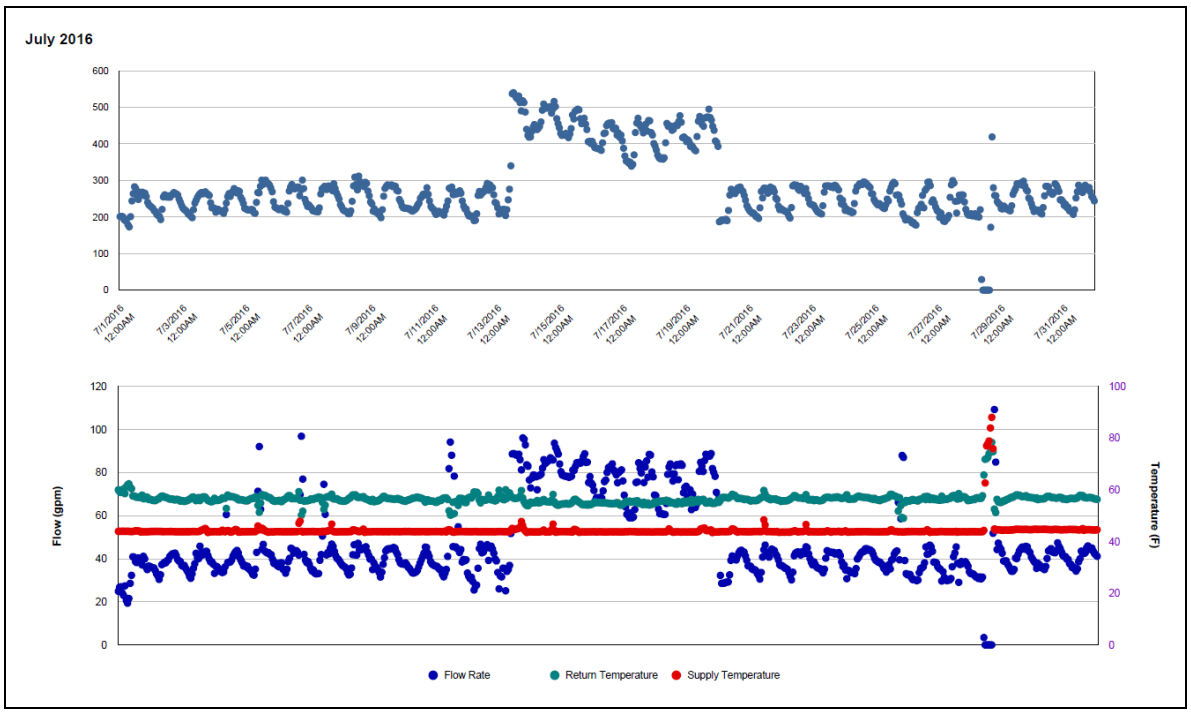
Quantitative descriptions and comments

The CHW consumption (Meter ID #008005) suddenly increased by 250 Btu/day/ft^2 during 7/13/2016 – 7/19/2016, due to the increase of the flow rate. During the same period, the CHW consumption (Meter ID #007982) for Leonard Hall – Dorm 7 and Ash LLC increased by 100 Btu/day/ft^2, also because of the higher flow rate. The CHW consumption was estimated by linear interpolation.

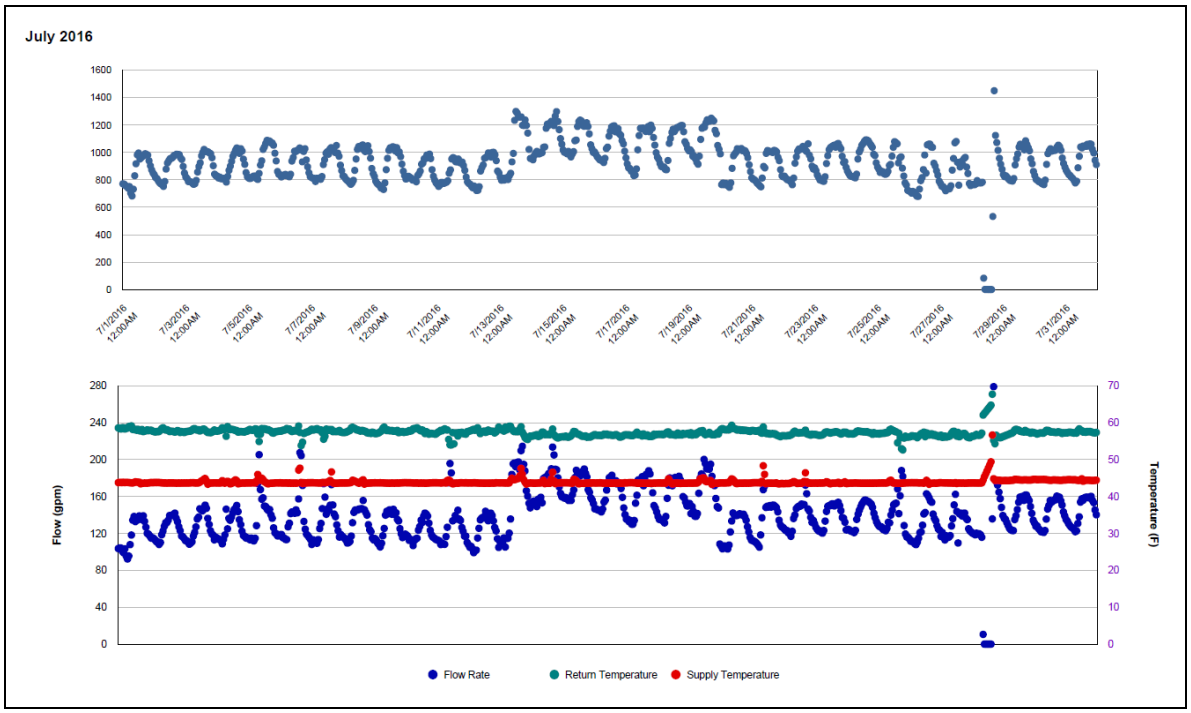
Explanatory Figure: 13 months energy balance plot with original data.



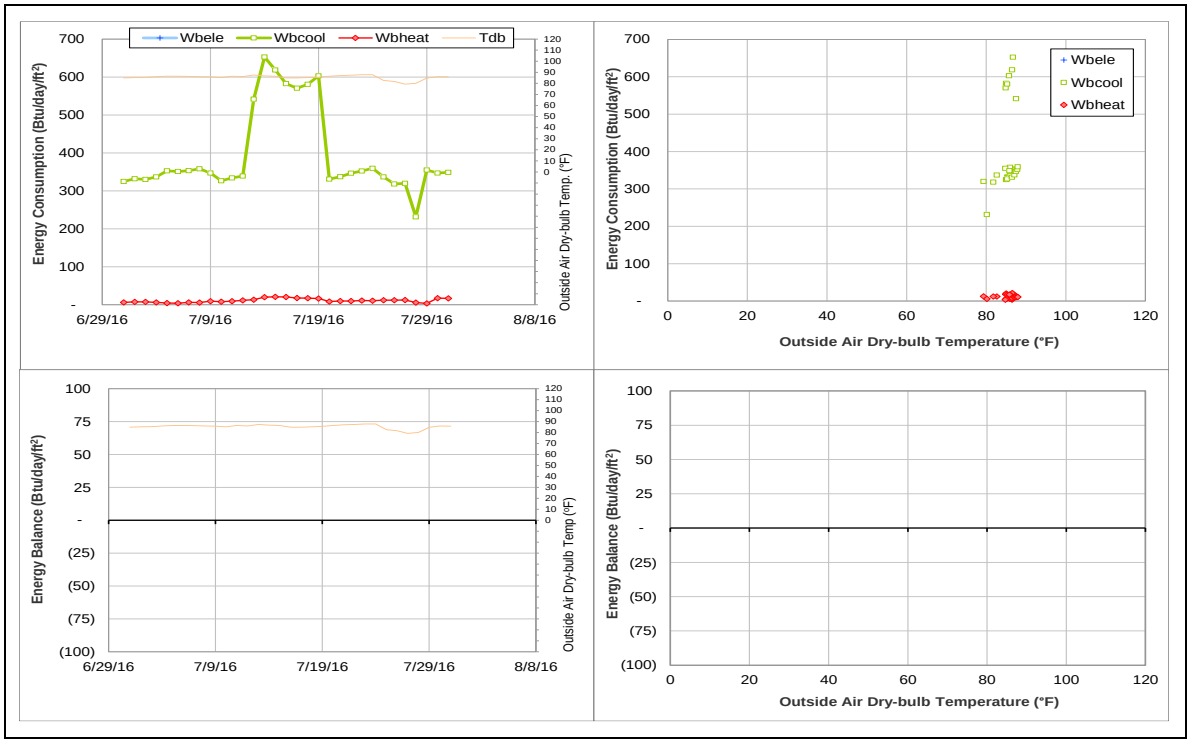
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW for Meter ID #008005 during July 2016)



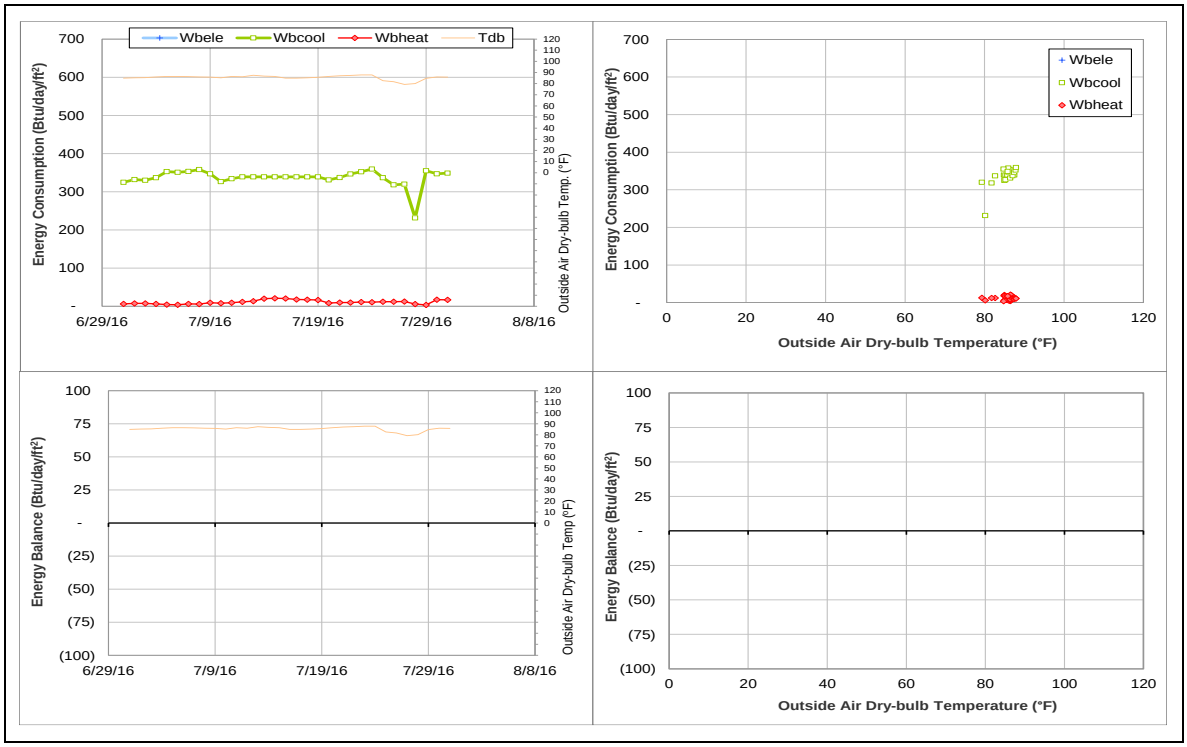
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW for Meter ID #007982 during July 2016)



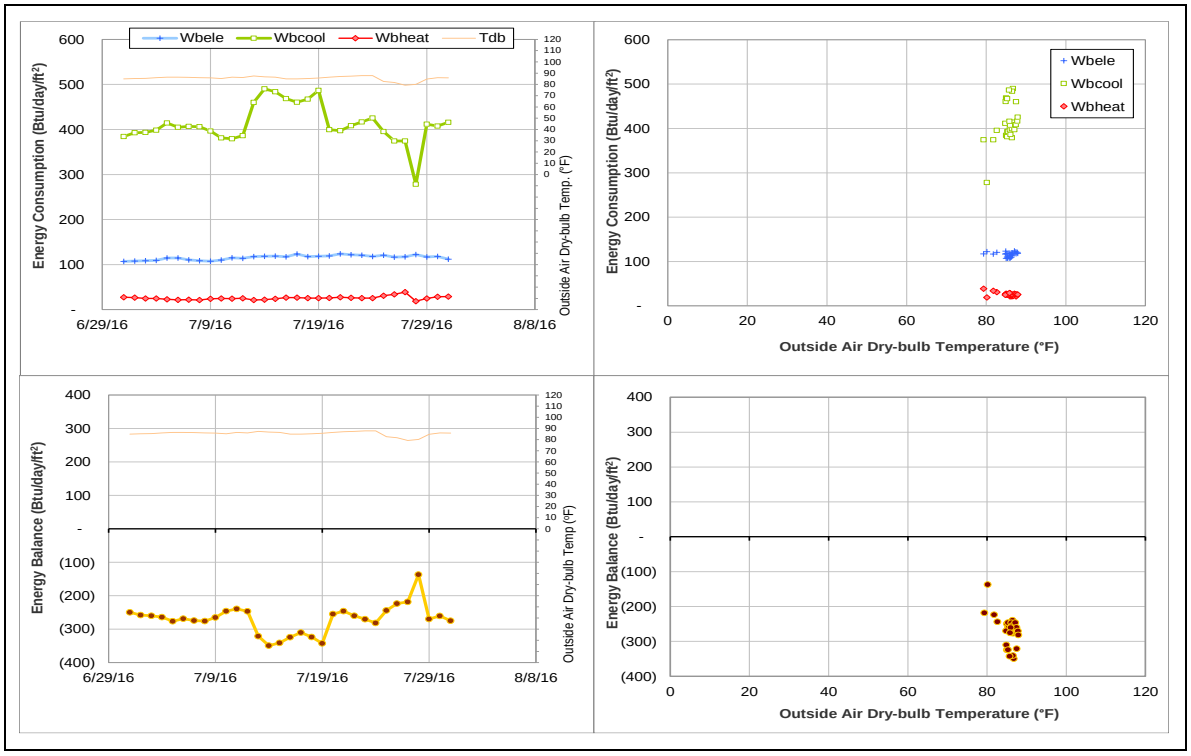
Energy balance plot using the original data for the month of analysis for H. Grady Ash, Jr. '58 Leadership Learning Center. Missing data have been filled in, if any.



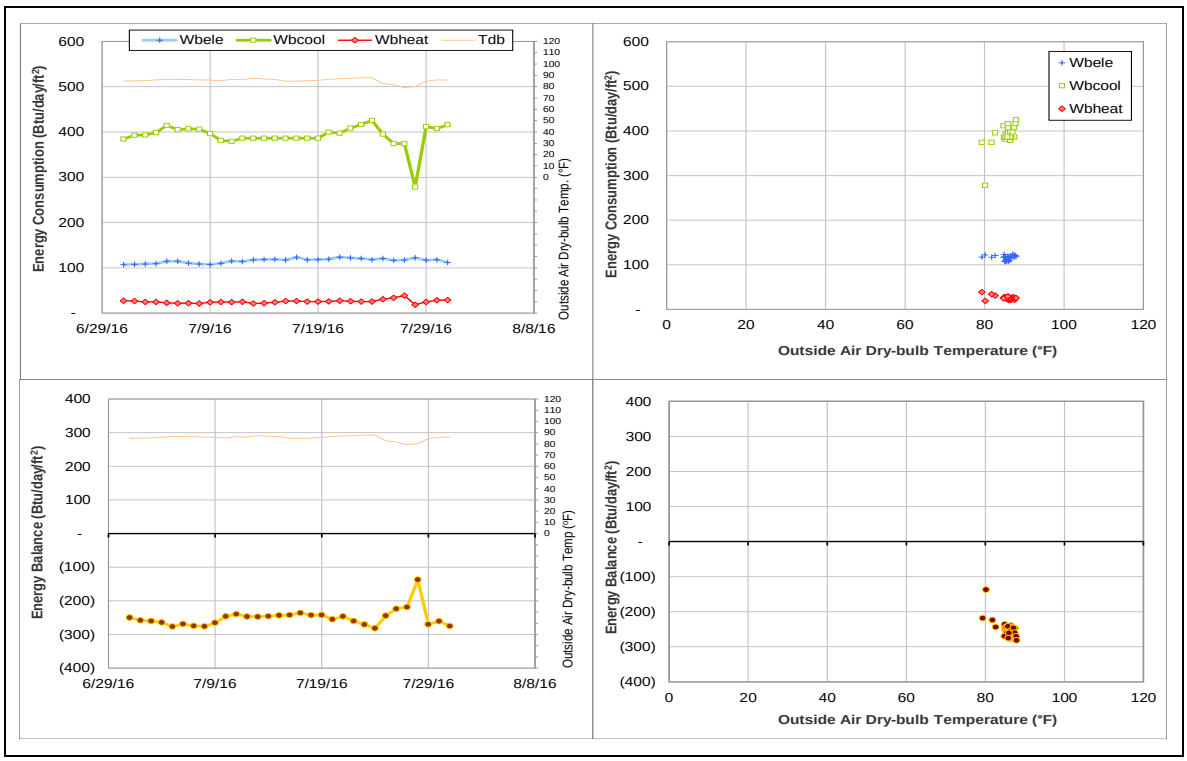
Energy balance plot using the estimated data for the month of analysis for H. Grady Ash, Jr. '58 Leadership Learning Center.



Energy balance plot using the original data for the month of analysis for Leonard Hall - Dorm 7 and Ash LLC. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis for Leonard Hall - Dorm 7 and Ash LLC.



Academic Building (TAMU Bldg #462)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	005905	16	7/16/2016 – 7/31/2016	Model
HHW	005909	16	7/16/2016 – 7/31/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	Large increase in consumption.	7/16/2016 – 7/28/2016
	Consumption drops to zero.	7/29/2016 – 7/31/2016
HHW	Large increase in consumption.	7/16/2016 – 7/28/2016
	Consumption drops to zero.	7/29/2016 – 7/31/2016

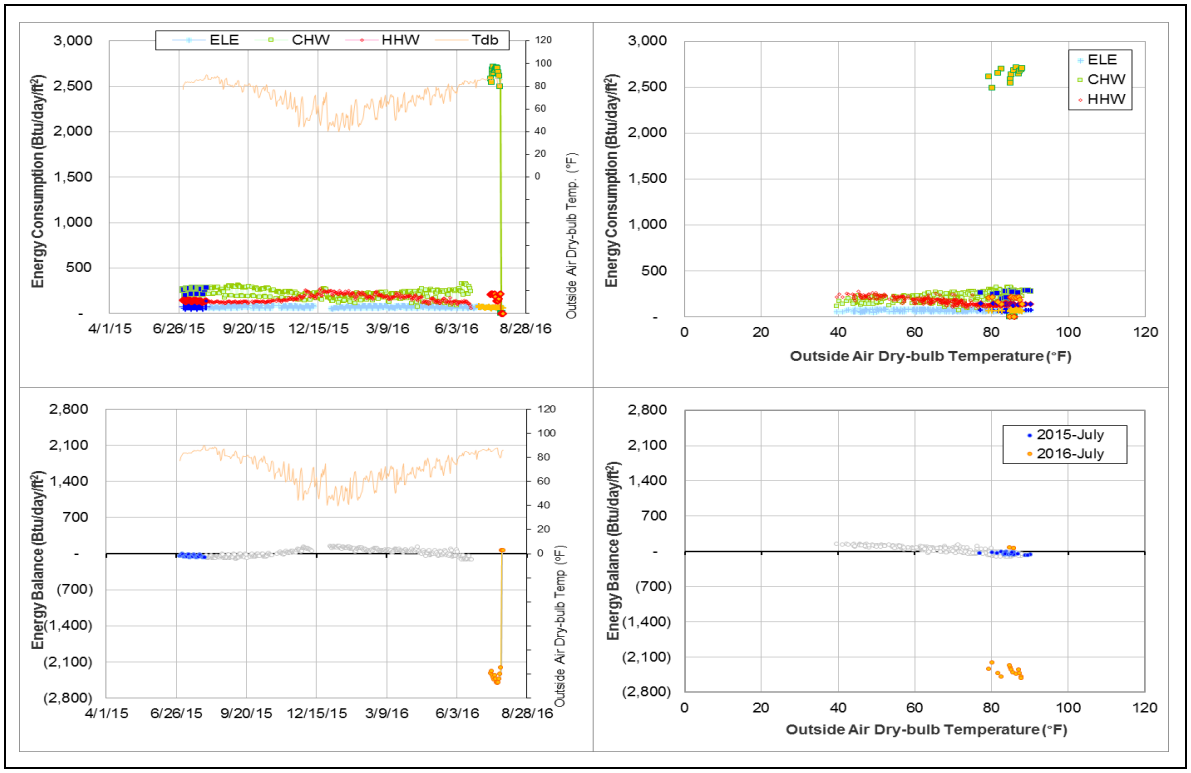
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	005905	7/16/2016 – 7/31/2016	mBtu	Calculated value seems faulty
		7/29/2016 – 7/31/2016	Flow rate	Sudden decrease to zero
			Delta-T	Sudden decrease to zero
HHW	005909	7/16/2016 – 7/31/2016	mBtu	Calculated value seems faulty
		7/29/2016 – 7/31/2016	Flow rate	Sudden decrease to zero
			Delta-T	Sudden decrease to zero

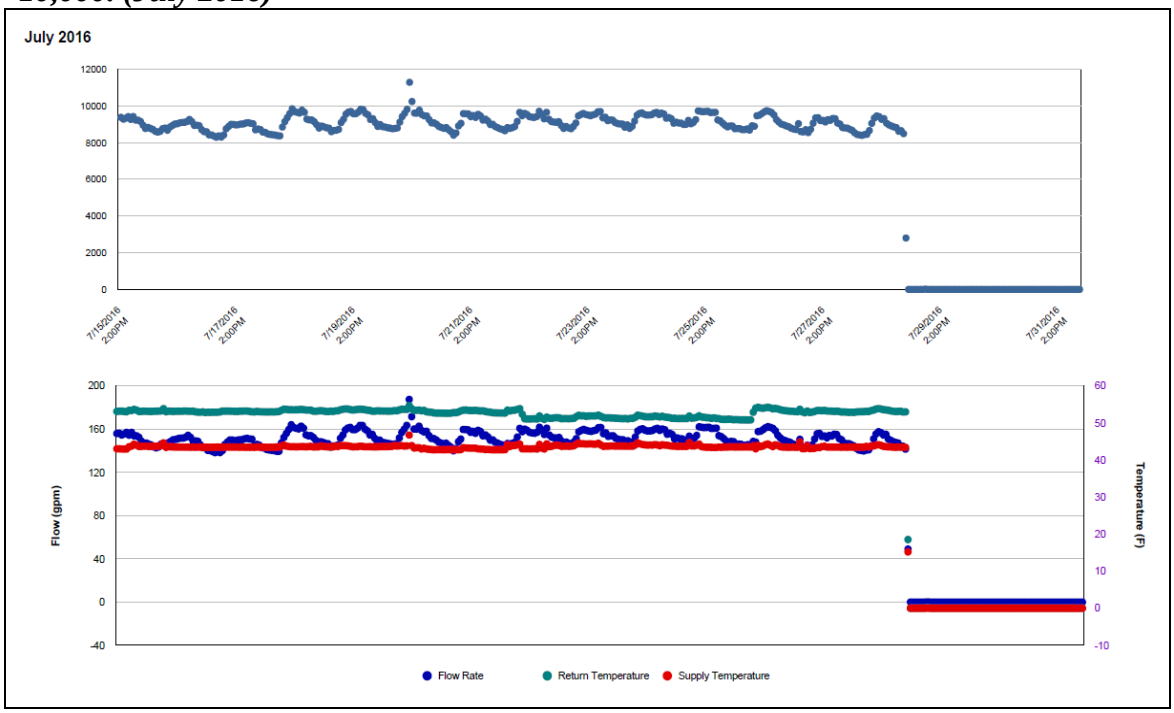
Quantitative descriptions and comments

From 7/1/2016-7/15/2016, the meter data for both CHW and HHW is missing. Starting 7/16/2016, the meter data returns, but at higher than usual levels. The HHW daily consumption increased around 50% while the CHW daily consumption increased by about 900%. The calculated CHW and HHW mBtu seems faulty for the flow rate and delta T measured. Starting 7/29/2016 and through the end of the month, the flow rate and Delta-T for both CHW and HHW went to zero. CHW and HHW consumption was estimated using a model for 7/16/2016 – 7/31/2016.

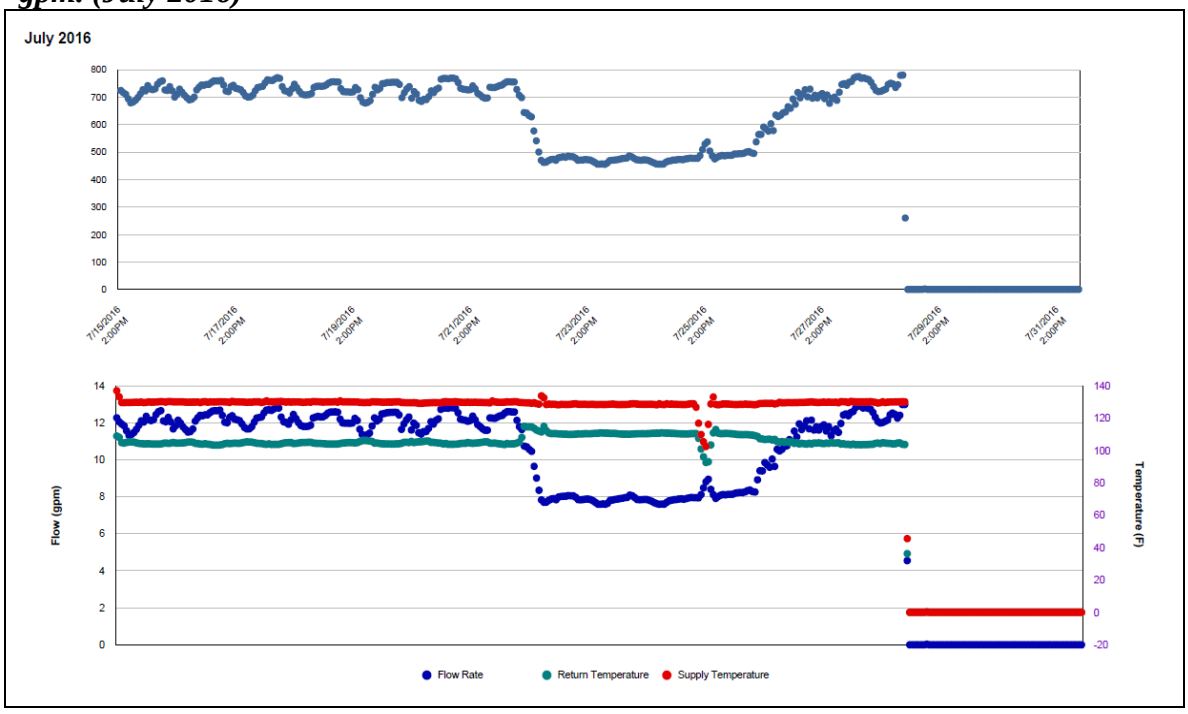
Explanatory Figure: 13 months energy balance plot with original data.



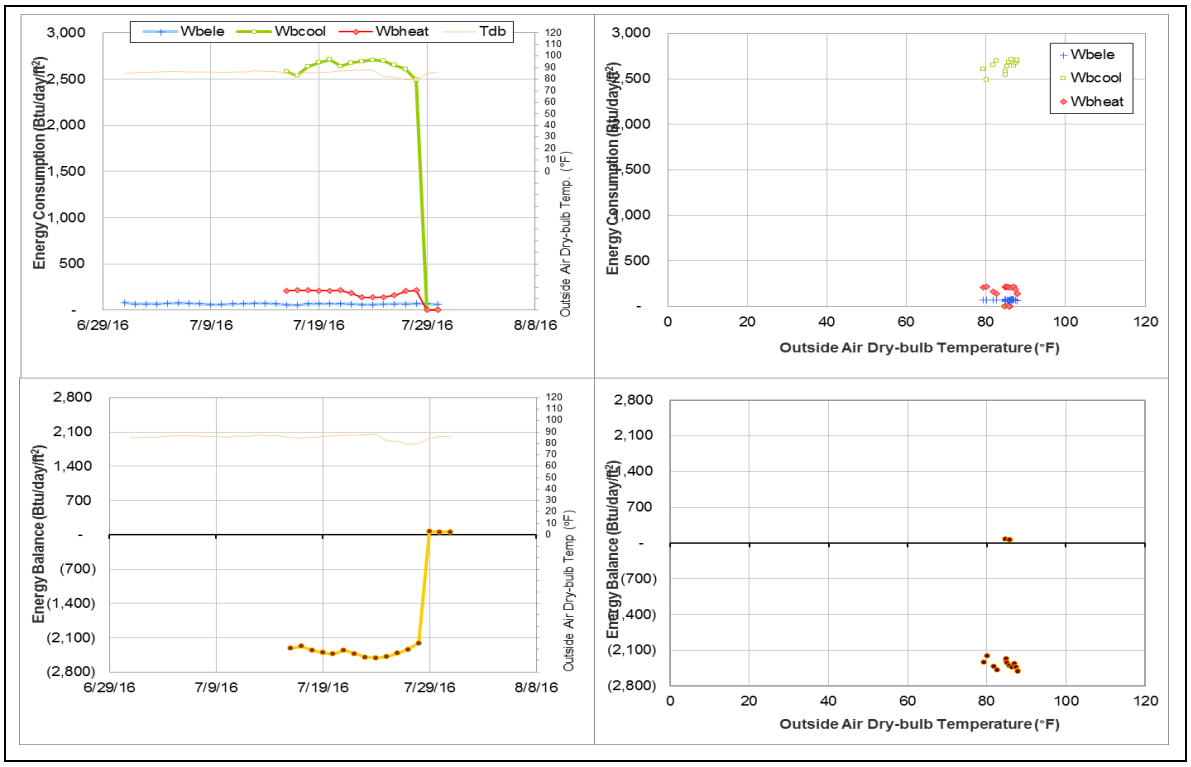
Explanatory Figure: Time series plots of hourly CHW energy consumption, flow rate, and supply and return temperatures from the utilities office. Days 7/1/2016 through 7/15/2016 are missing. Note the level of mBtu being calculated, between 8000 and 10,000. (July 2016)



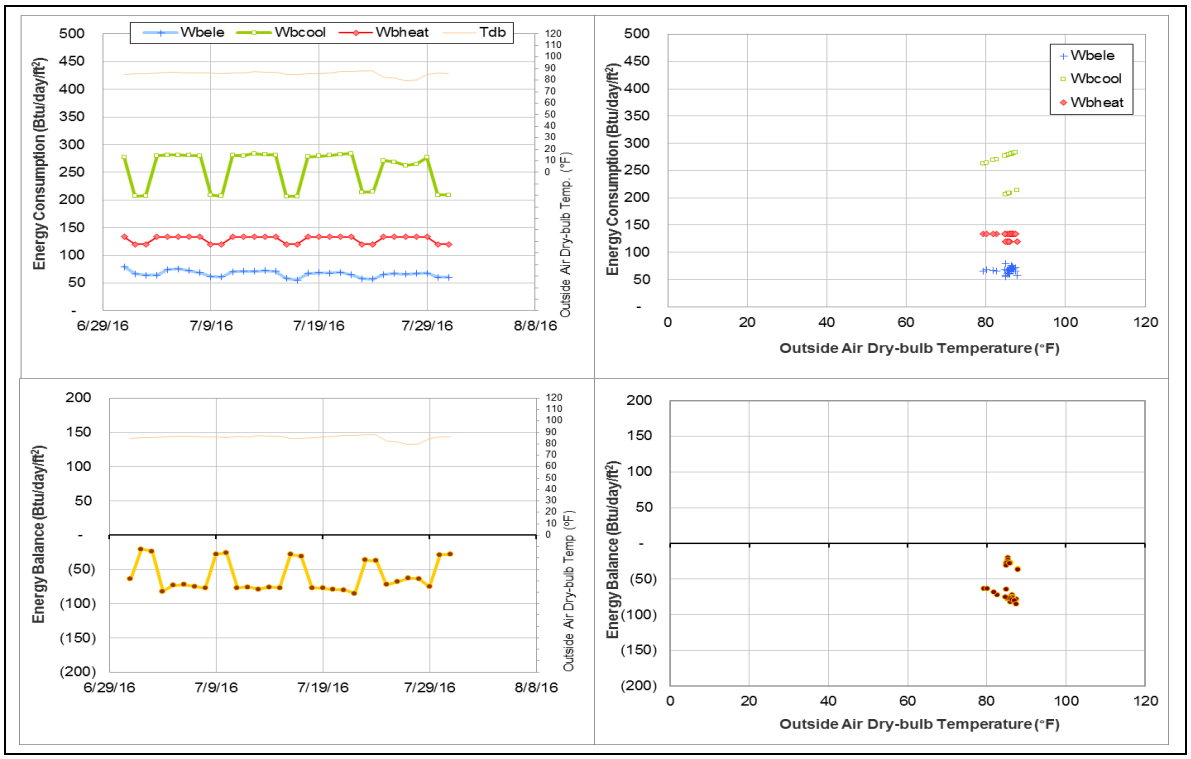
Explanatory Figure: Time series plots of hourly HHW energy consumption, flow rate, and supply and return temperatures from the utilities office. Days 7/1/2016 through 7/15/2016 are missing. Note the level of mBtu around 700 with only a flow rate of 12 gpm. (July 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Biological Sciences Building - East (TAMU Bldg # 467)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	003851	22	7/3/2016 – 7/24/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	Energy consumption decreased.	7/3/2016 – 7/24/2016
Energy Balance	The energy balance cross-point temperature increased to approx. 82°F.	7/3/2016 – 7/24/2016

Changes in sensor readings related to the detected issues

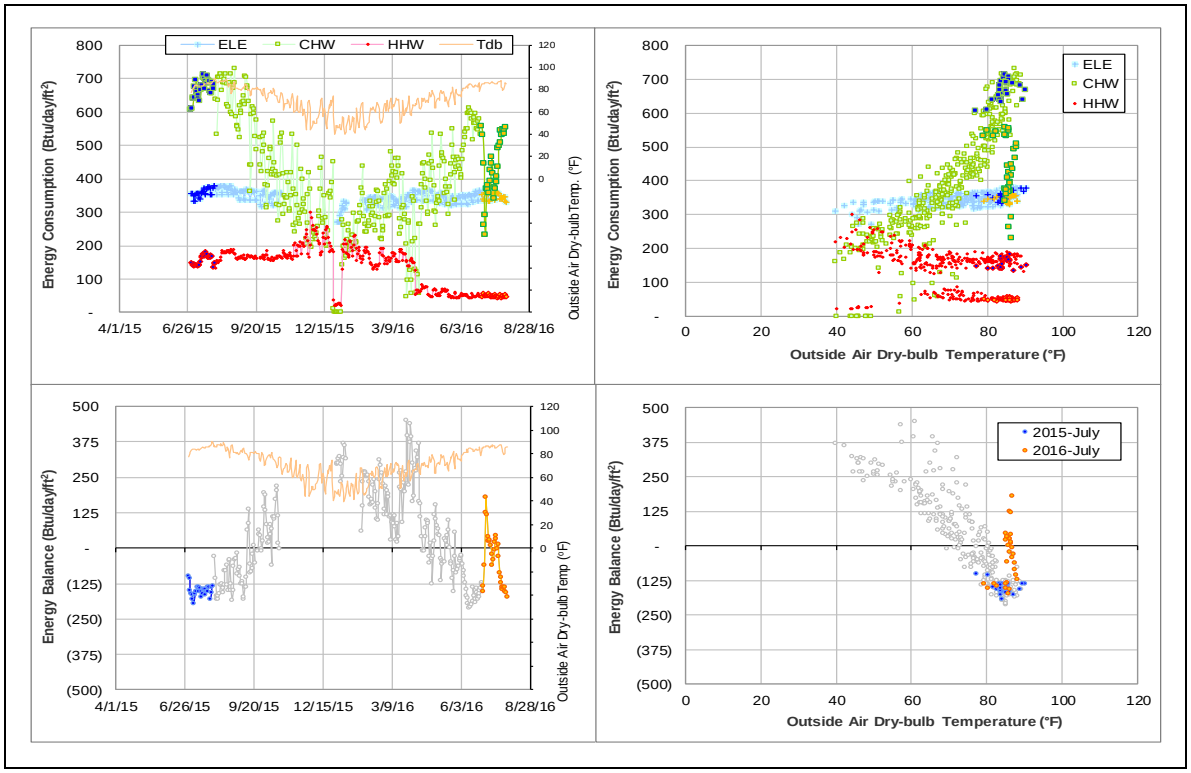
Energy Type	Meter ID	Period	Type	Description
CHW	003851	7/3/2016 – 7/24/2016	Flow rate	Decreased

Quantitative descriptions and comments

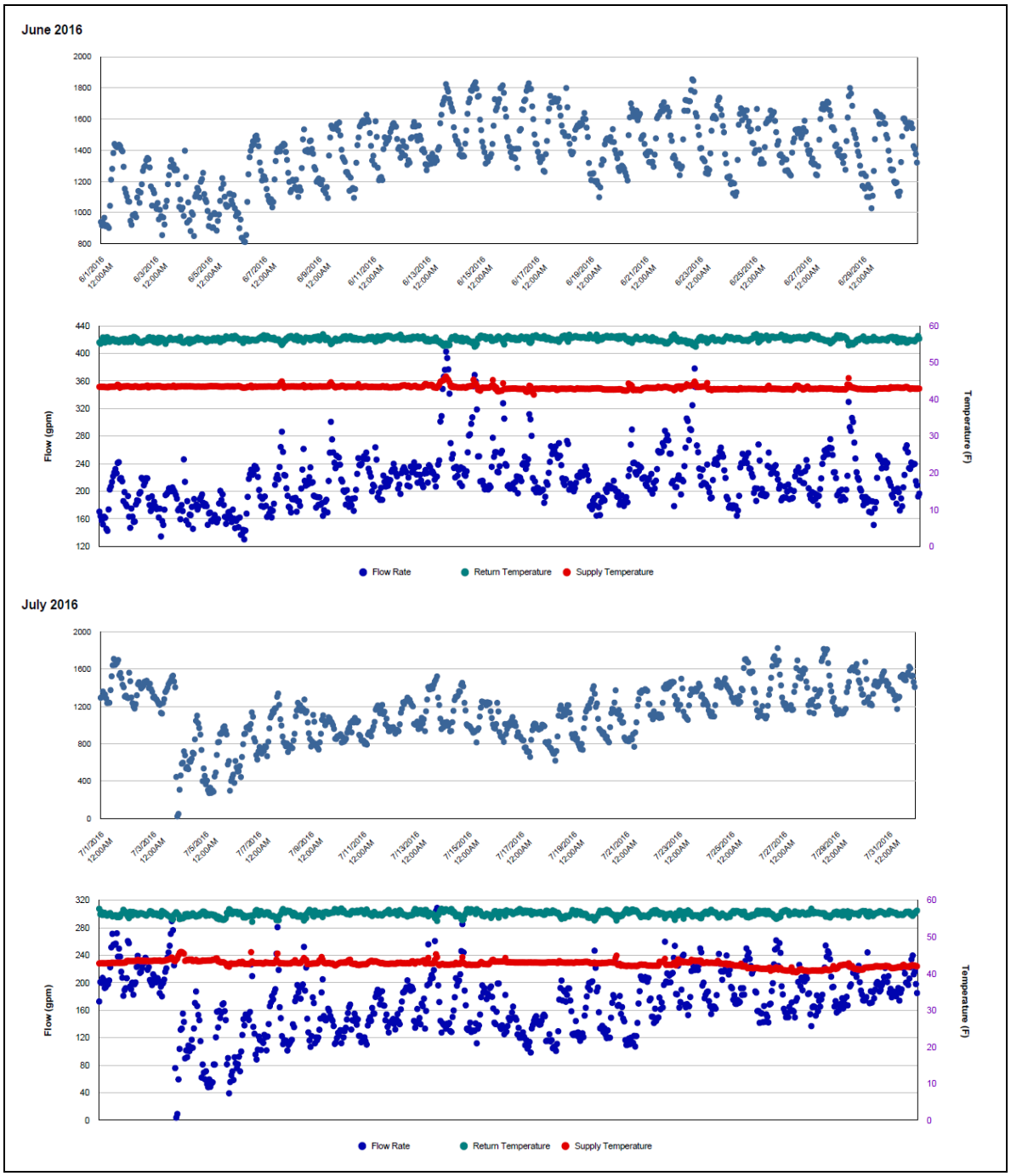
For the period 7/3/2016 – 7/24/2016, the CHW consumption dropped due to a decrease in flow rate while the energy balance cross-point temperature increase to around 82°F. The CHW consumption was estimated by model for this period.

The ELE usage level was in the range 290 - 390 Btu/day/ft^2 for the last year, which was higher than those for other buildings with similar functionality. It is suggested to investigate this meter.

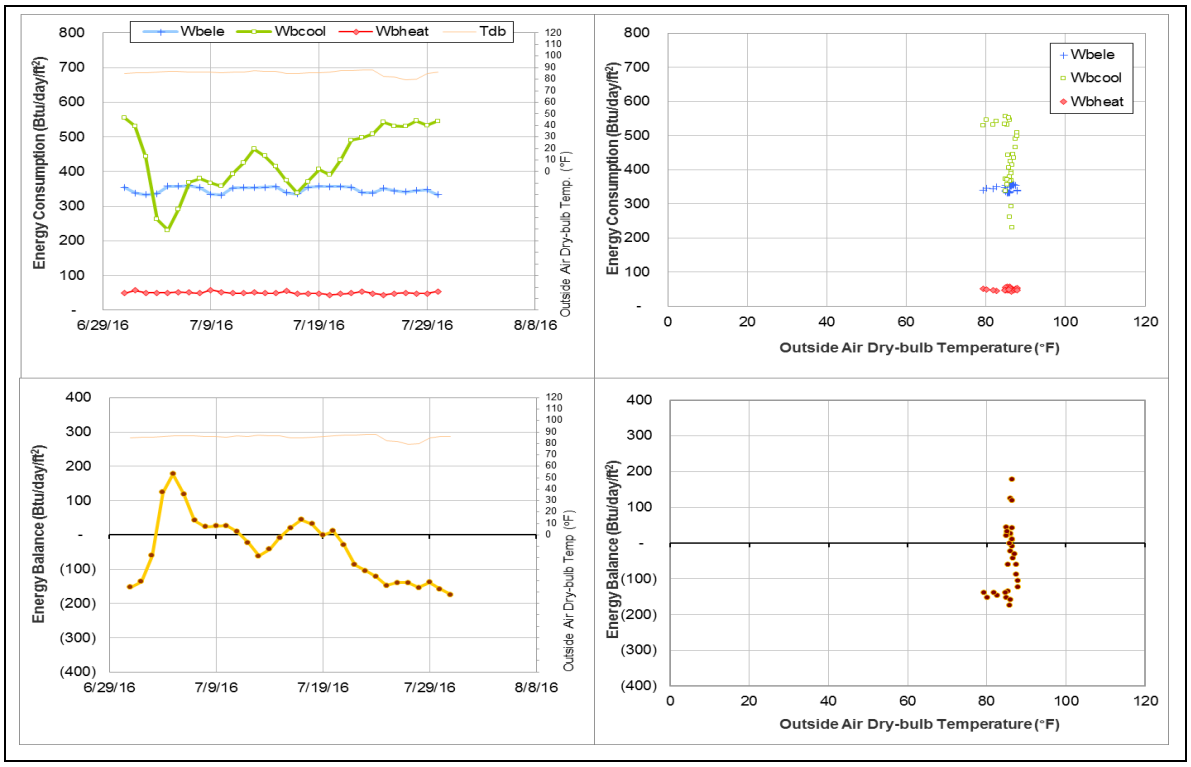
Explanatory Figure: 13 months energy balance plot with original data.



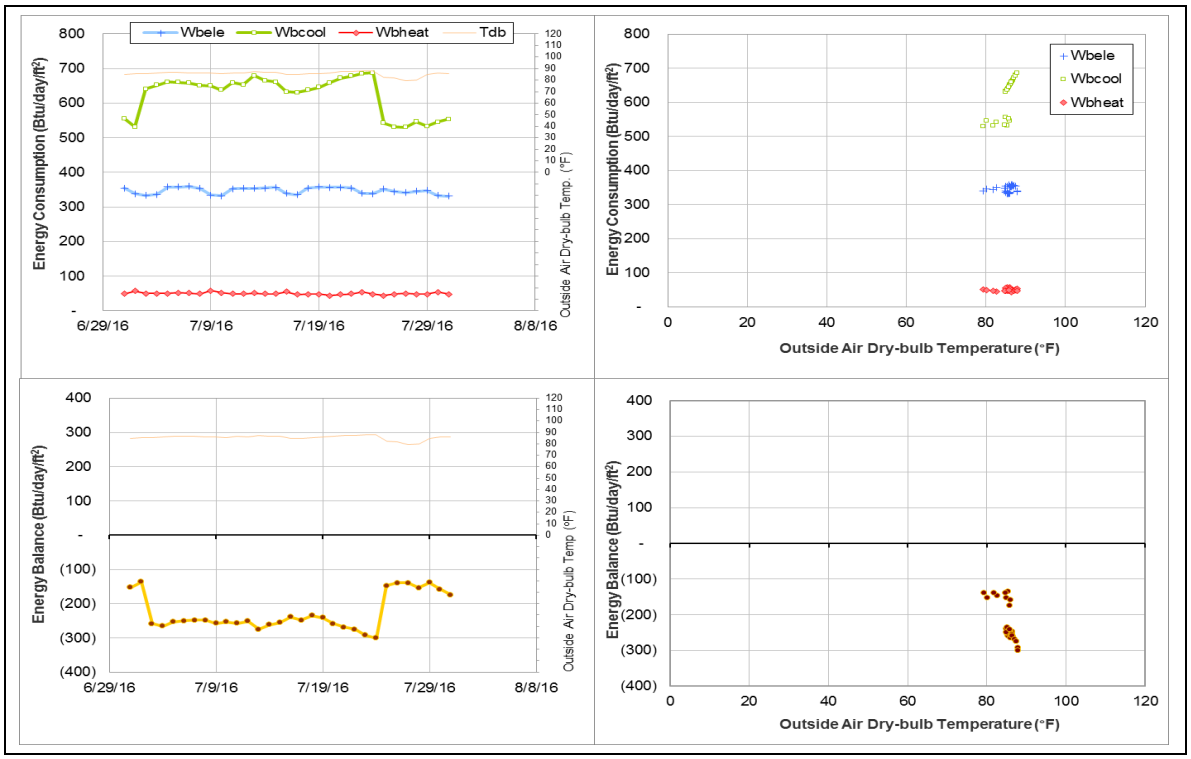
Explanatory Figure: Time series plots of hourly CHW energy consumption, flow rate, and supply and return temperatures from the utilities office. (top: June 2016, bottom: July 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Thompson Hall (TAMU Bldg #483)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	003887	6	7/26/2016 – 7/31/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	Energy consumption decreased to zero.	7/26/2016 – 7/31/2016

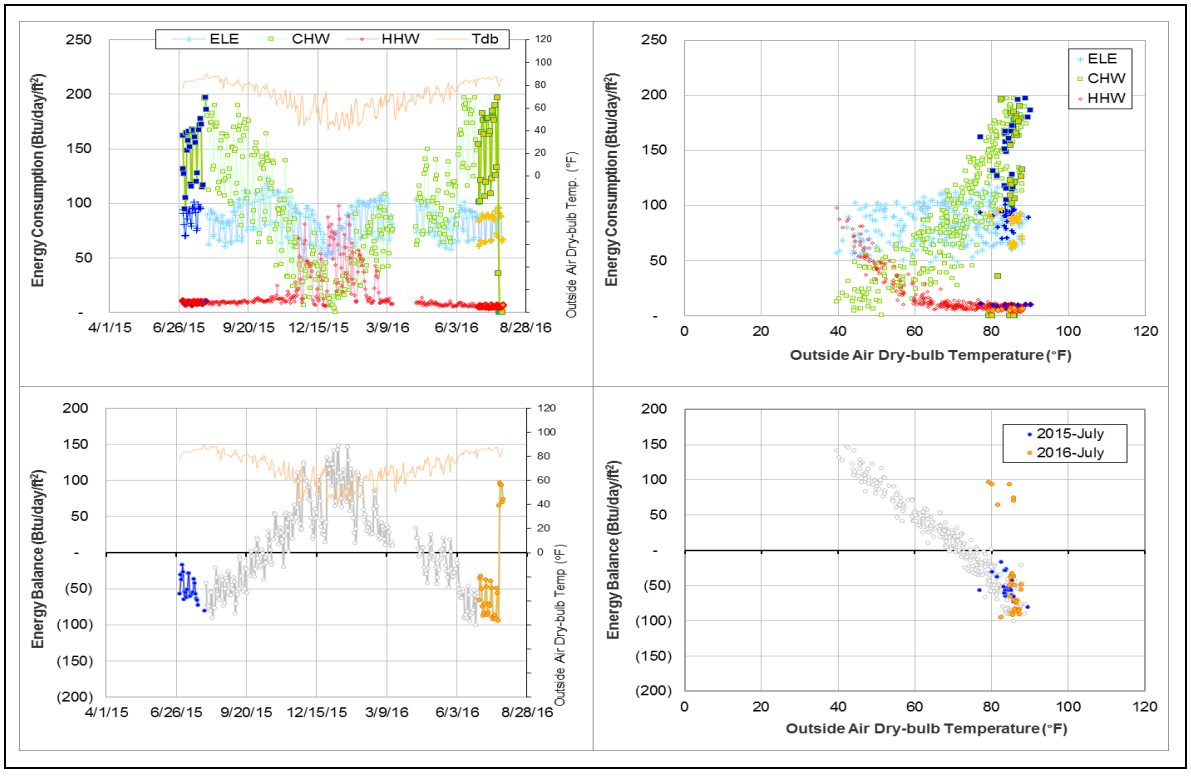
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	003887	7/26/2016 – 7/31/2016	Flow rate	Decreased to zero

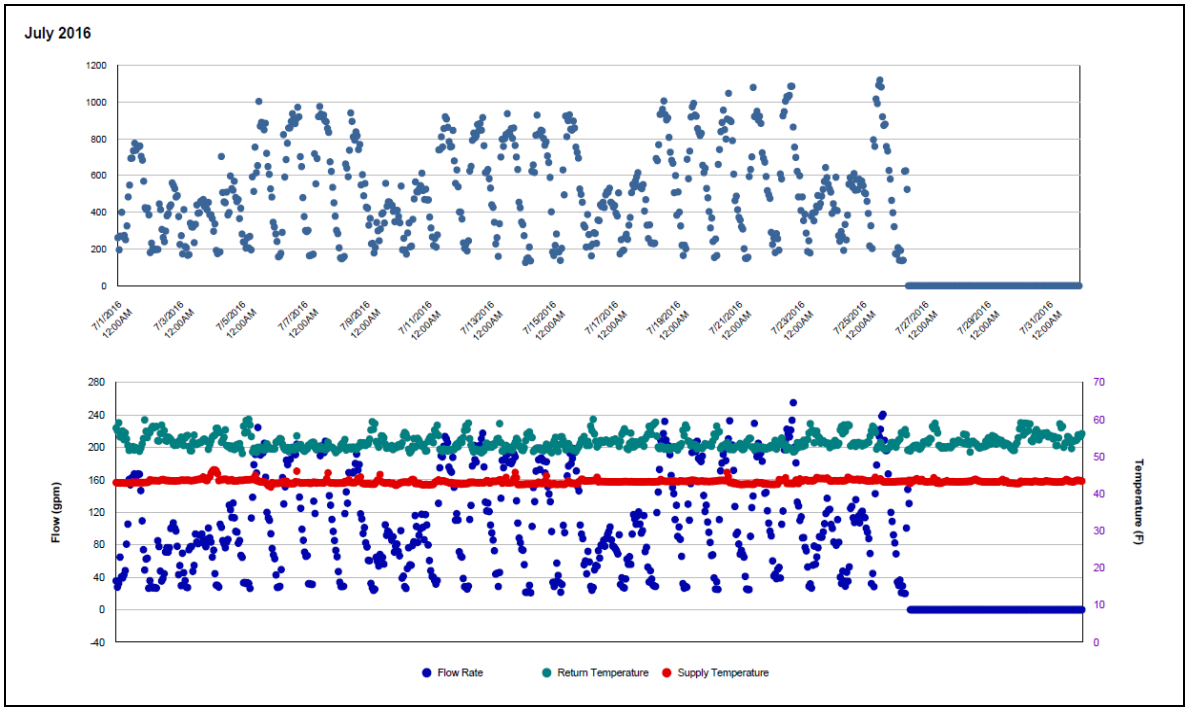
Quantitative descriptions and comments

Starting 7/26/2016, the flow rate for the CHW meter decreased to zero and stayed there for the rest of the month without any change in the delta T. The CHW consumption was estimated by model for this period.

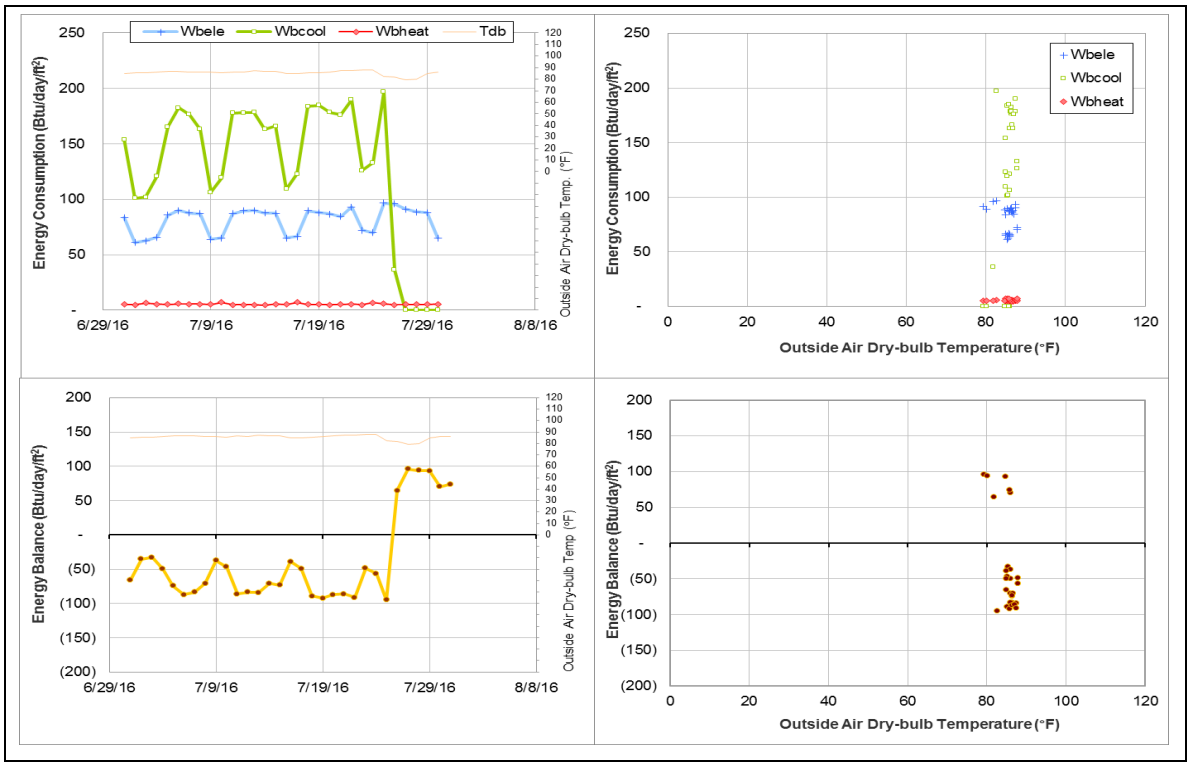
Explanatory Figure: 13 months energy balance plot with original data.



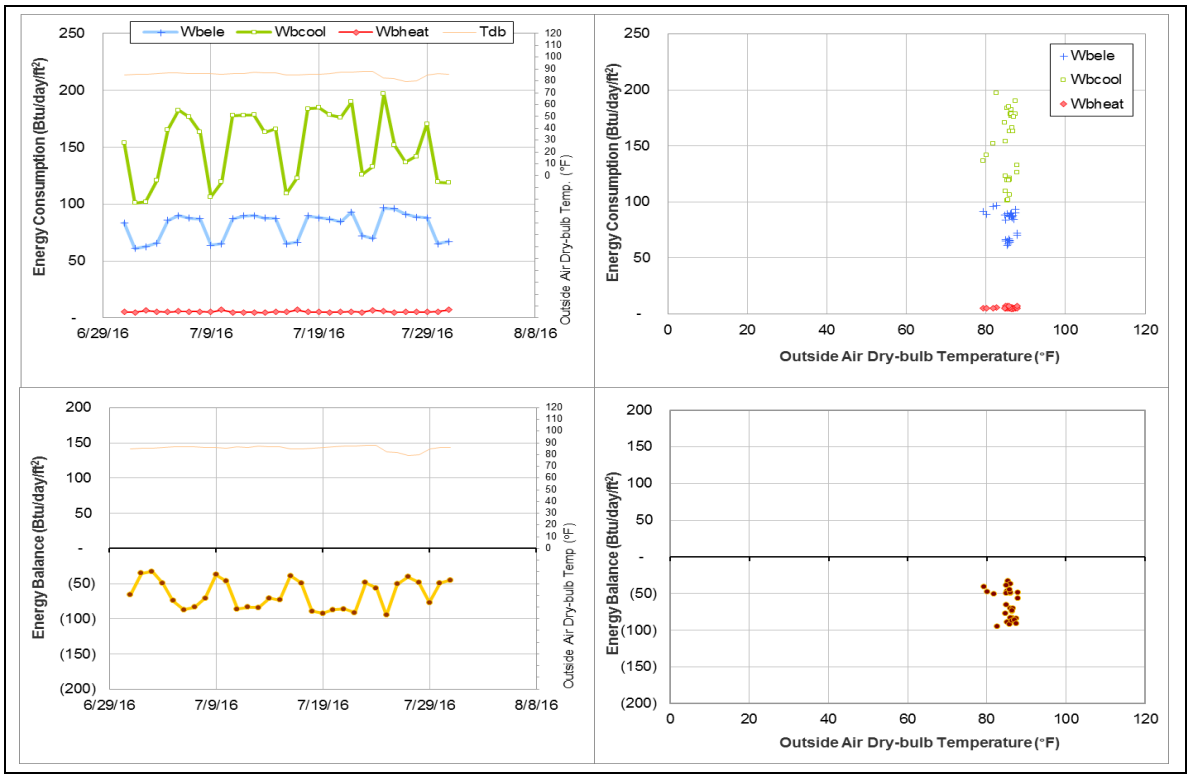
Explanatory Figure: Time series plots of hourly CHW energy consumption, flow rate, and supply and return temperatures from the utilities office. (July 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Chemistry Building (TAMU Bldg #484)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	007032	20	7/1/2016 – 7/20/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW (007032)	The recorded consumption was zero and it seems to be faulty.	5/17/2016 – ongoing

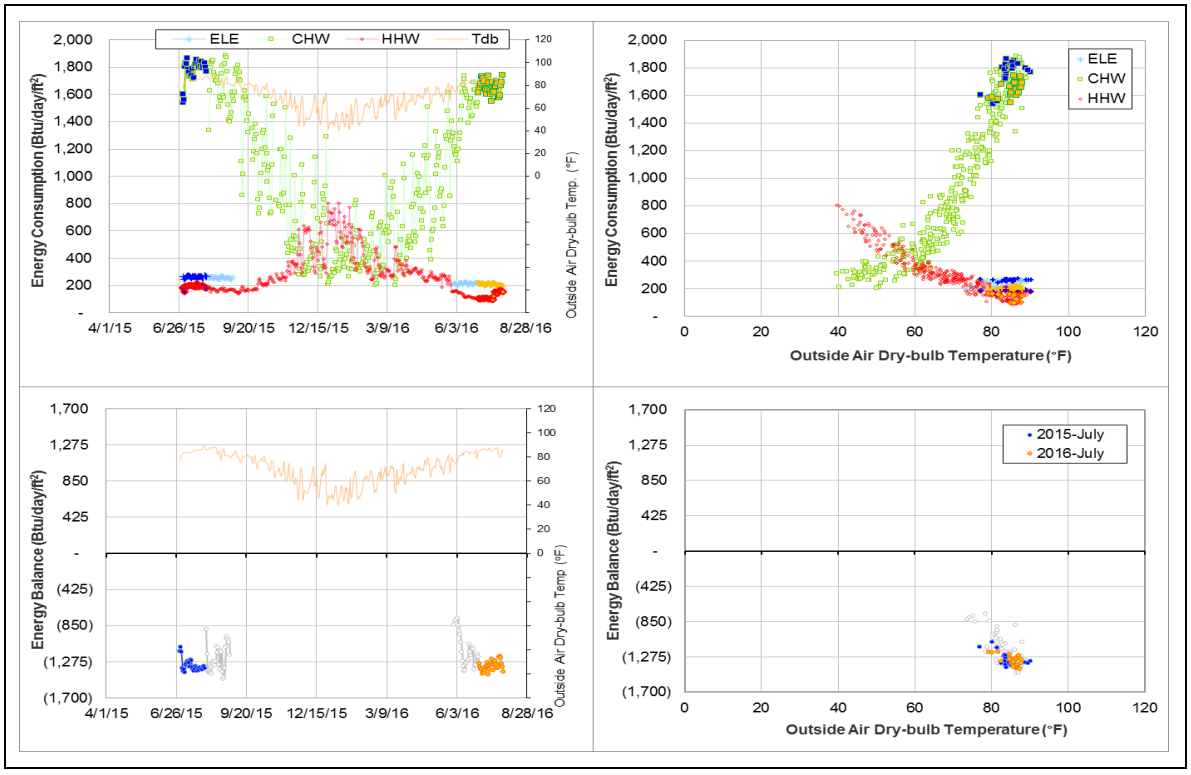
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	007032	5/17/2016 – ongoing	Return Temperature	Increased

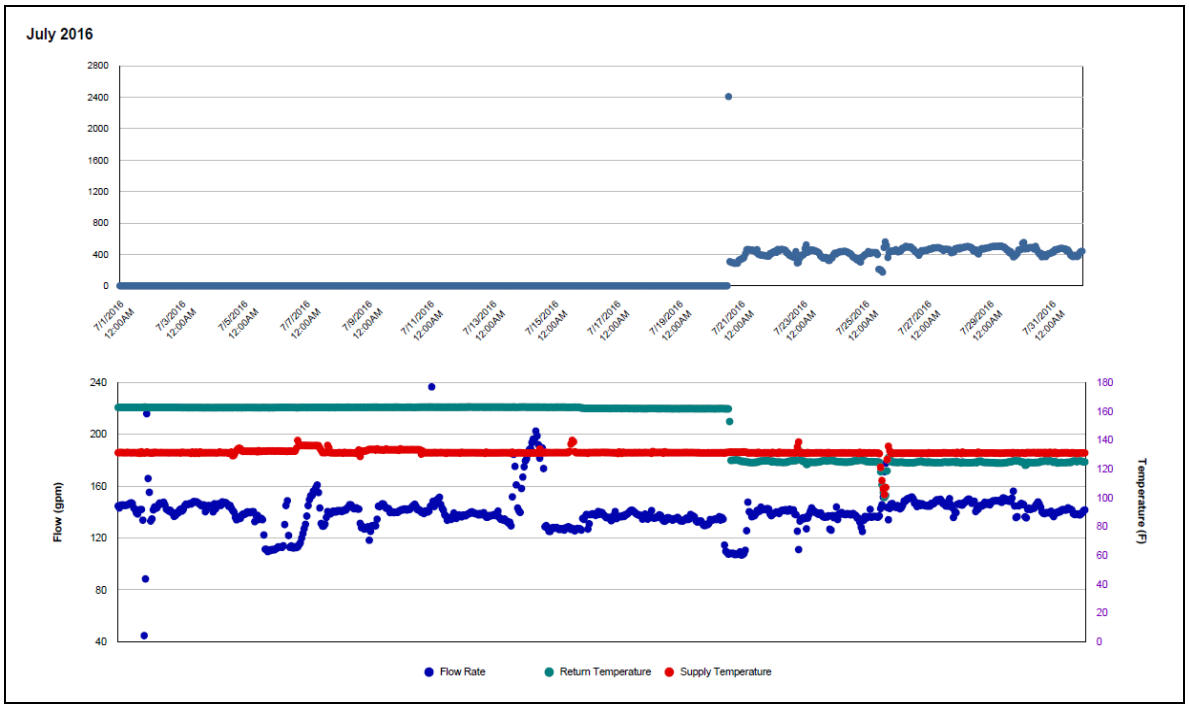
Quantitative descriptions and comments

There are two HHW meters for this building. Starting in May 2016, the return temperature for one of HHW meters (Meter ID 007032) increased above the supply temperature creating a negative delta T. The consumption for entire month was estimated by a model.

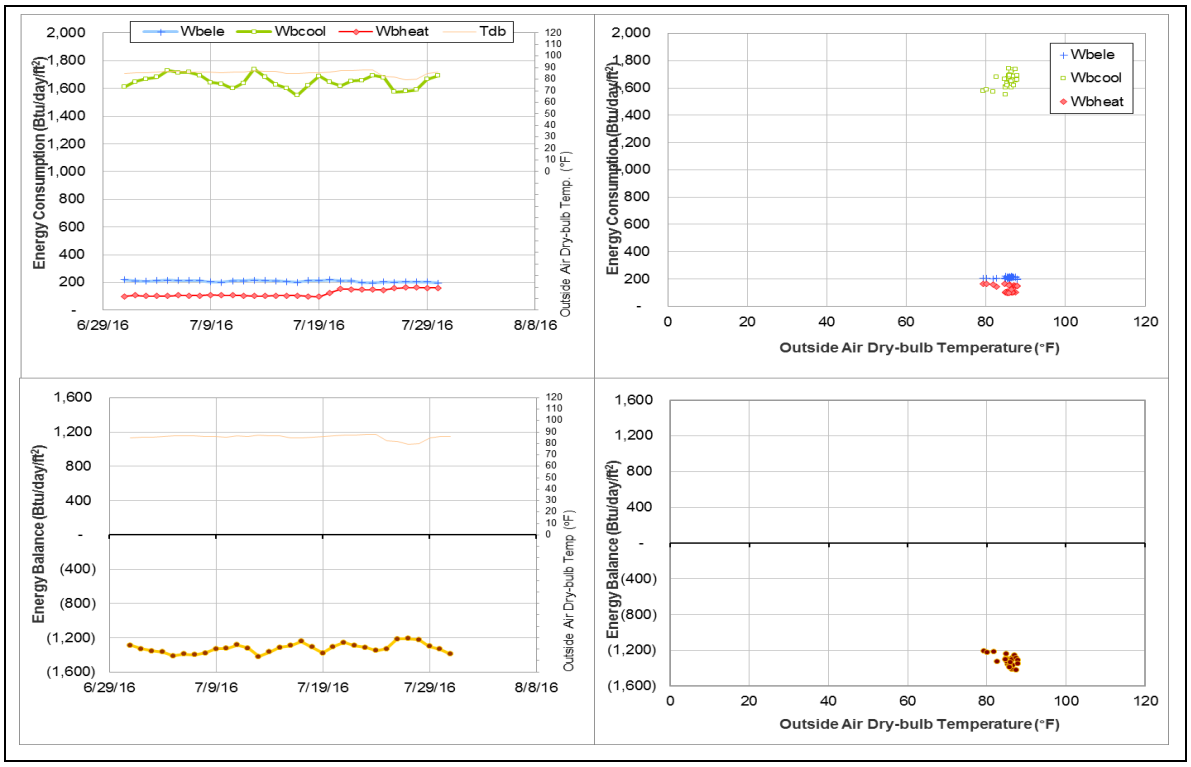
Explanatory Figure: 13 months energy balance plot with original data.



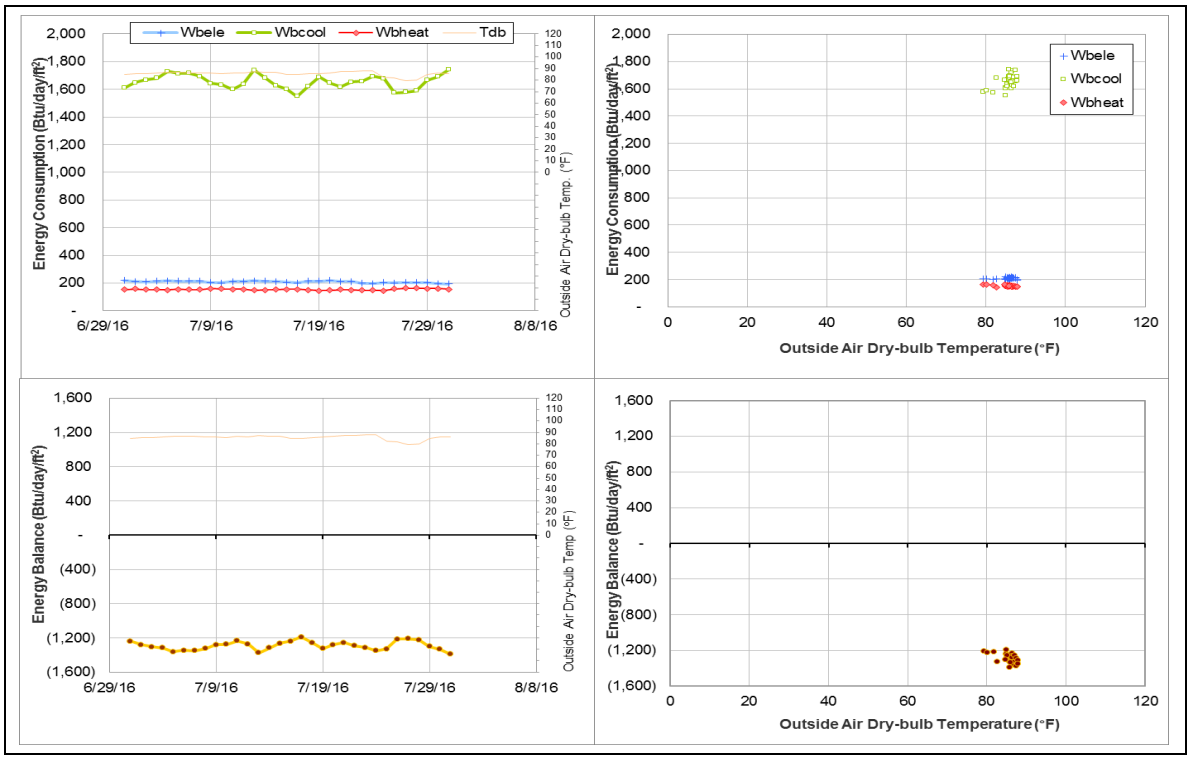
Explanatory Figure: Time series plots of hourly HHW energy consumption, flow rate, and supply and return temperatures from the utilities office. (Meter #007032, July 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Halbouty Geosciences Building (TAMU Bldg # 490)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	006900	8	7/19/2016 – 7/26/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption level decreased.	7/19/2016 – 7/26/2016

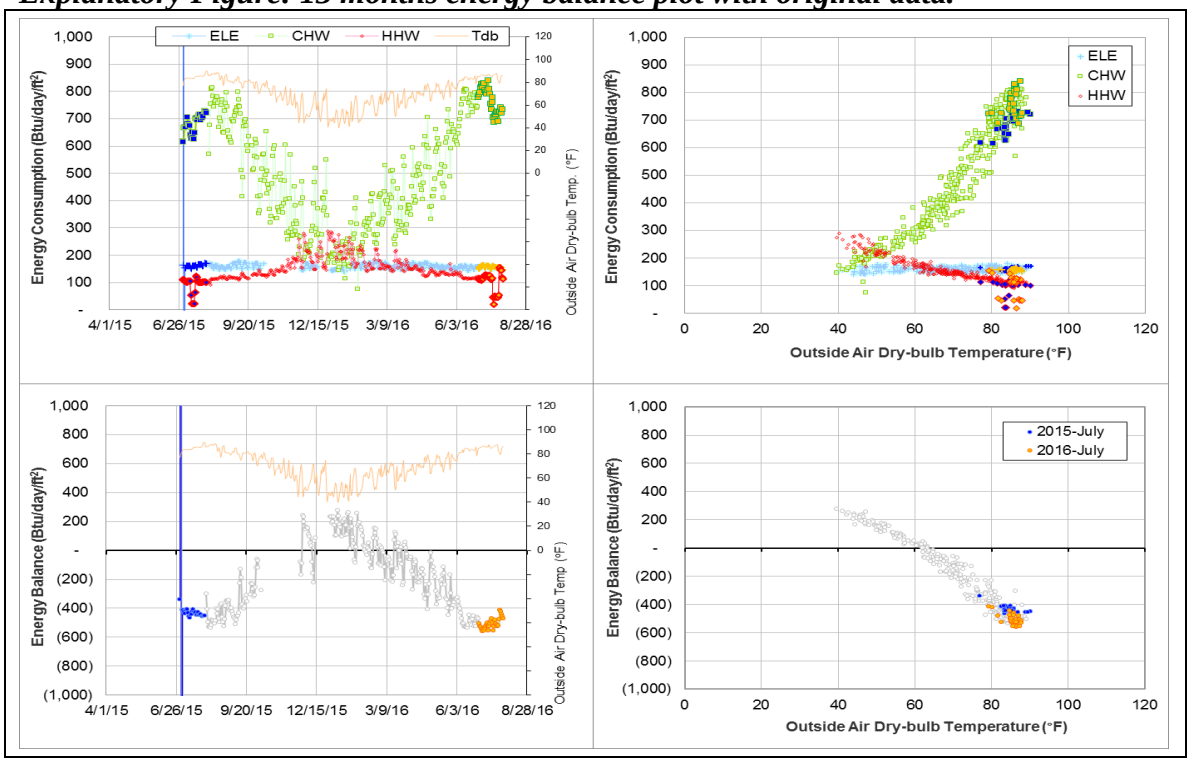
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	006900	7/19/2016 – 7/26/2016	Flow Rate	Decreased
			Delta-T	Decreased

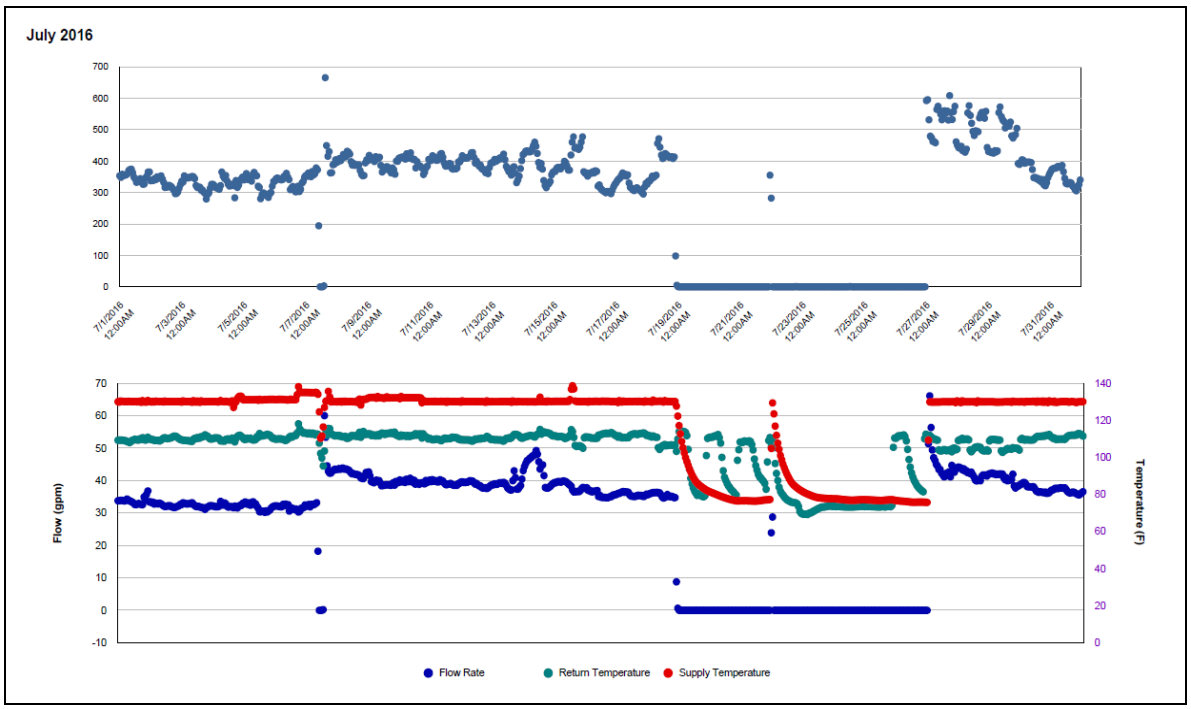
Quantitative descriptions and comments

There are two HHW meters for this building. Meter ID #006900 showed a decrease in flow rate and delta for the period of 7/19/2016 – 7/26/2016. The HHW consumption was estimated by model for this period.

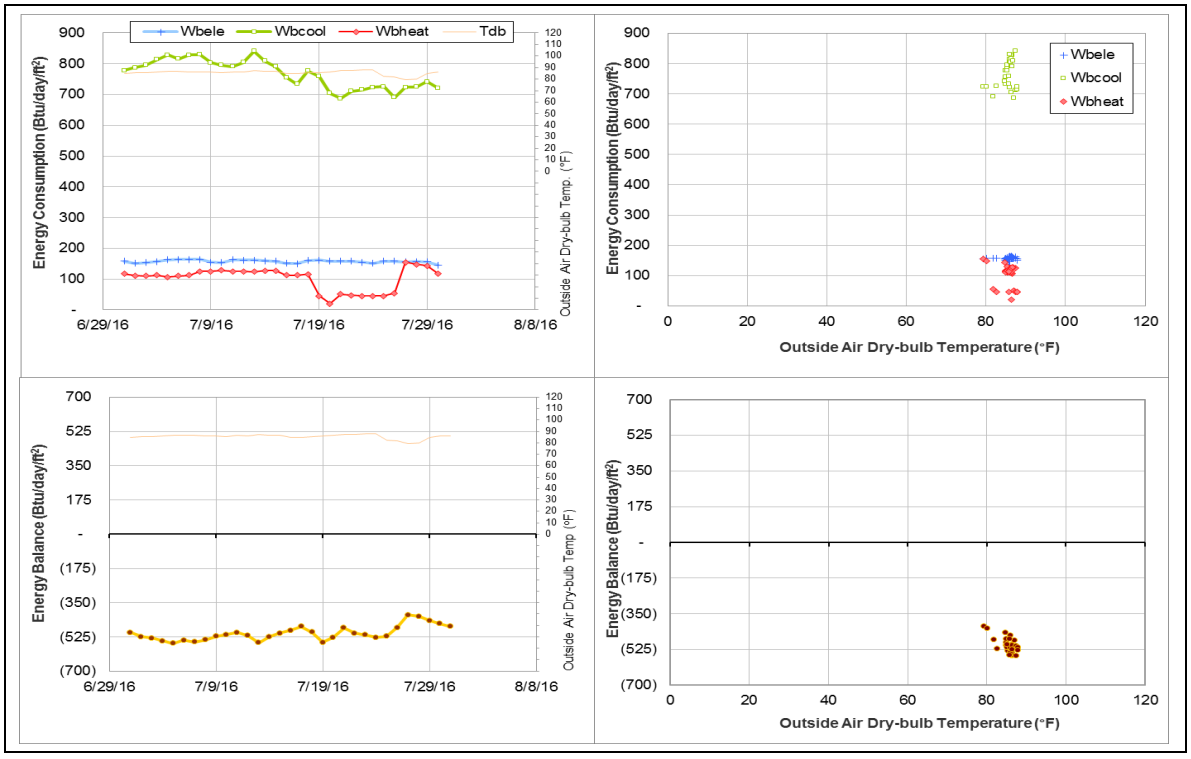
Explanatory Figure: 13 months energy balance plot with original data.



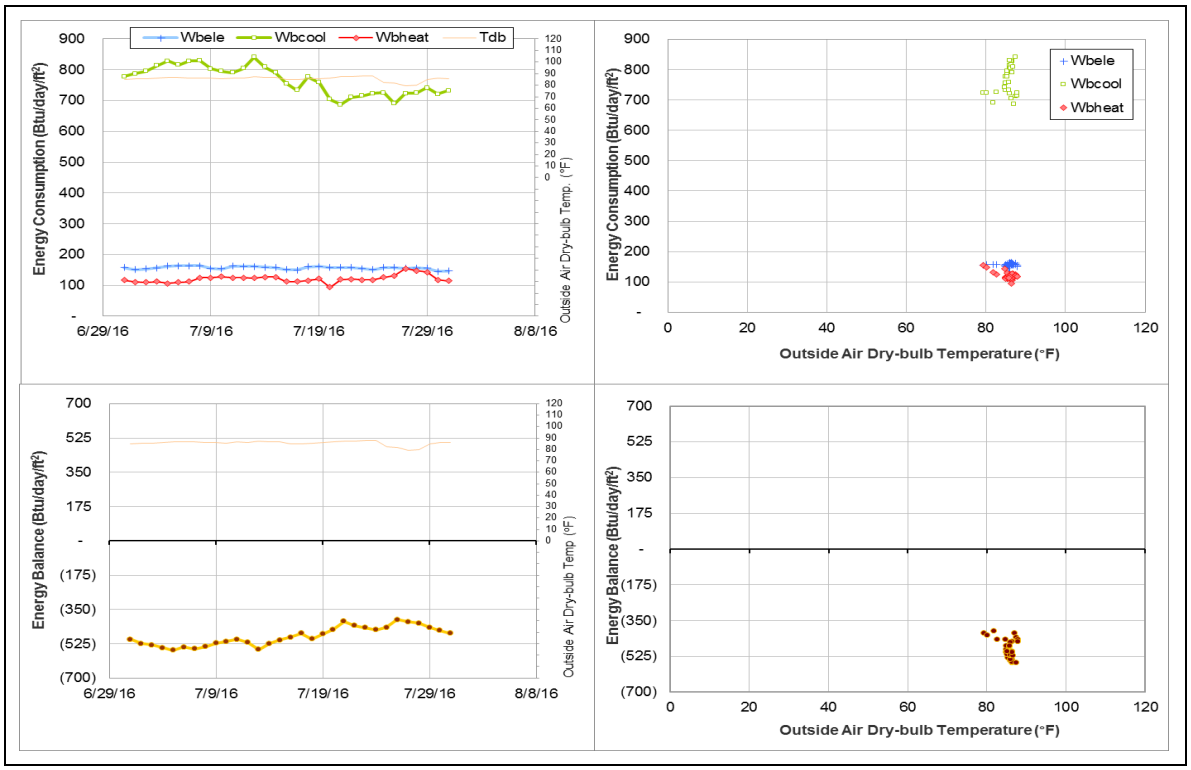
Explanatory Figure: Time series plots of hourly HHW energy consumption, flow rate, and supply and return temperatures from the utilities office. (Meter #006900, July 2016)



Energy balance plot using the original data for the month of analysis.



Energy balance plot using the estimated data for the month of analysis



Civil Engineering Building (TAMU Bldg # 492)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	005950	21	7/11/2016 – 7/31/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption level increased.	7/11/2016 – 7/31/2016

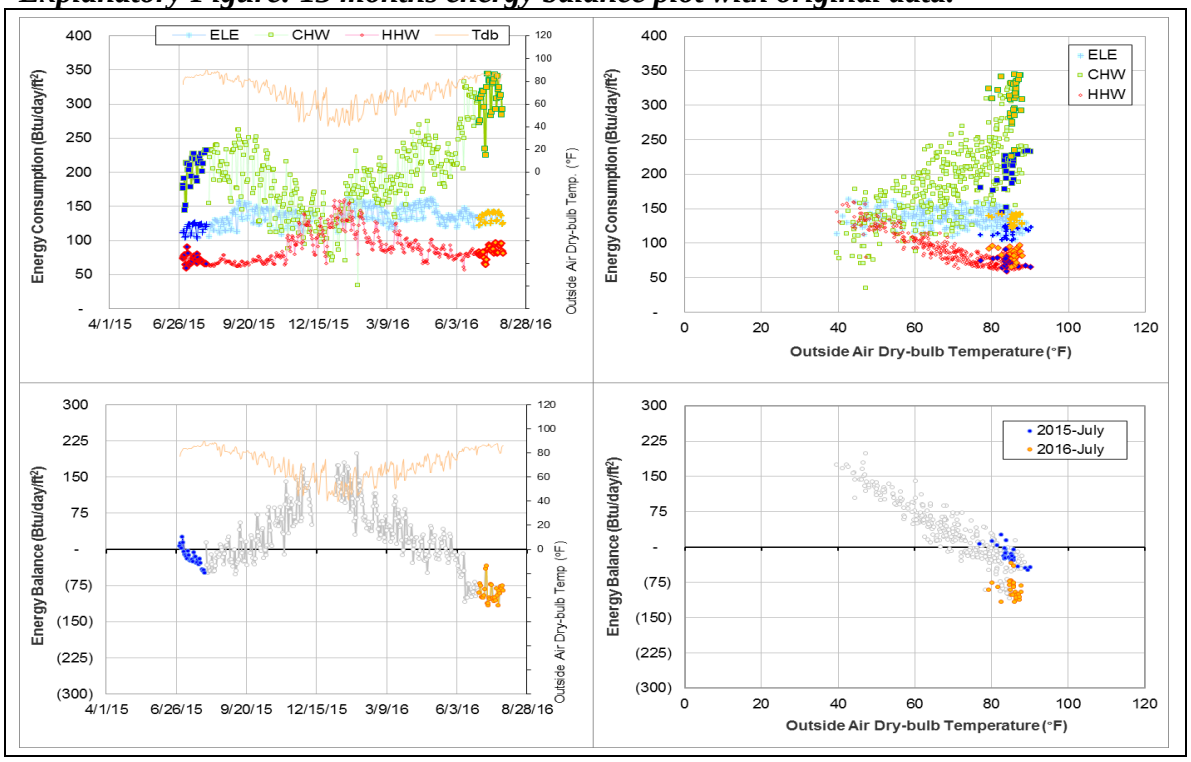
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	005950	7/11/2016 – 7/31/2016	Flow Rate	Increased largely

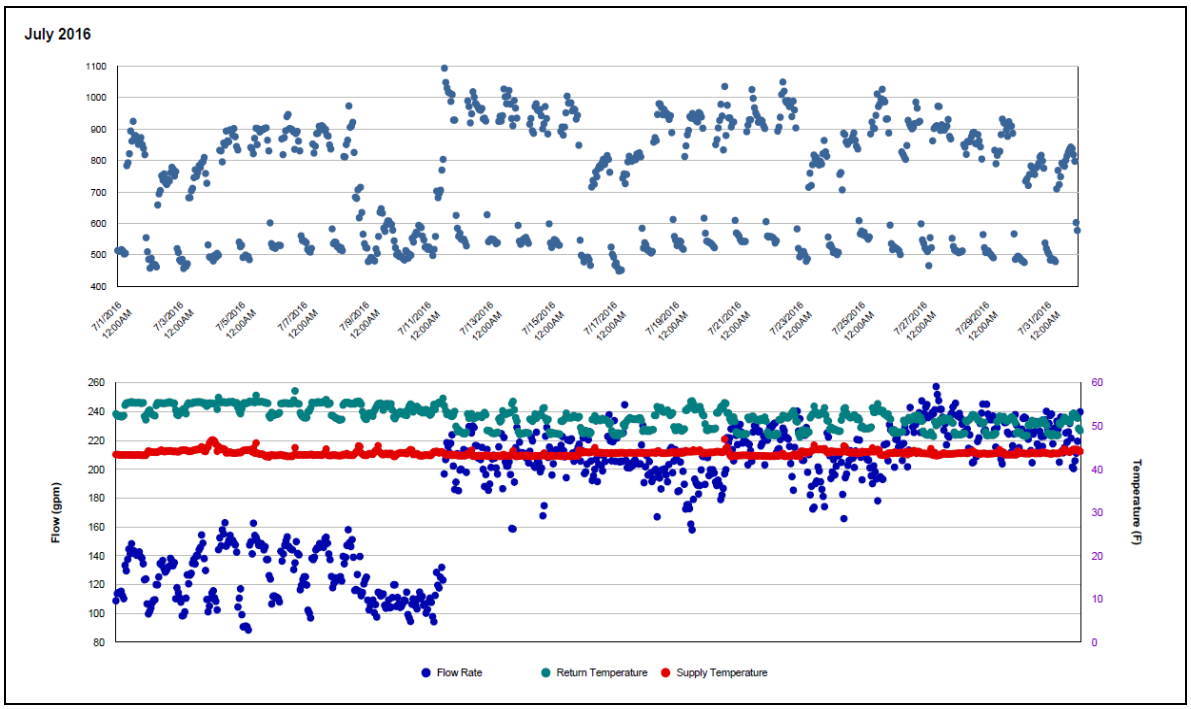
Quantitative descriptions and comments

The CHW meter showed an increase in flow rate around 200% after 7/11/2016. CHW consumption was estimated for this period by a model.

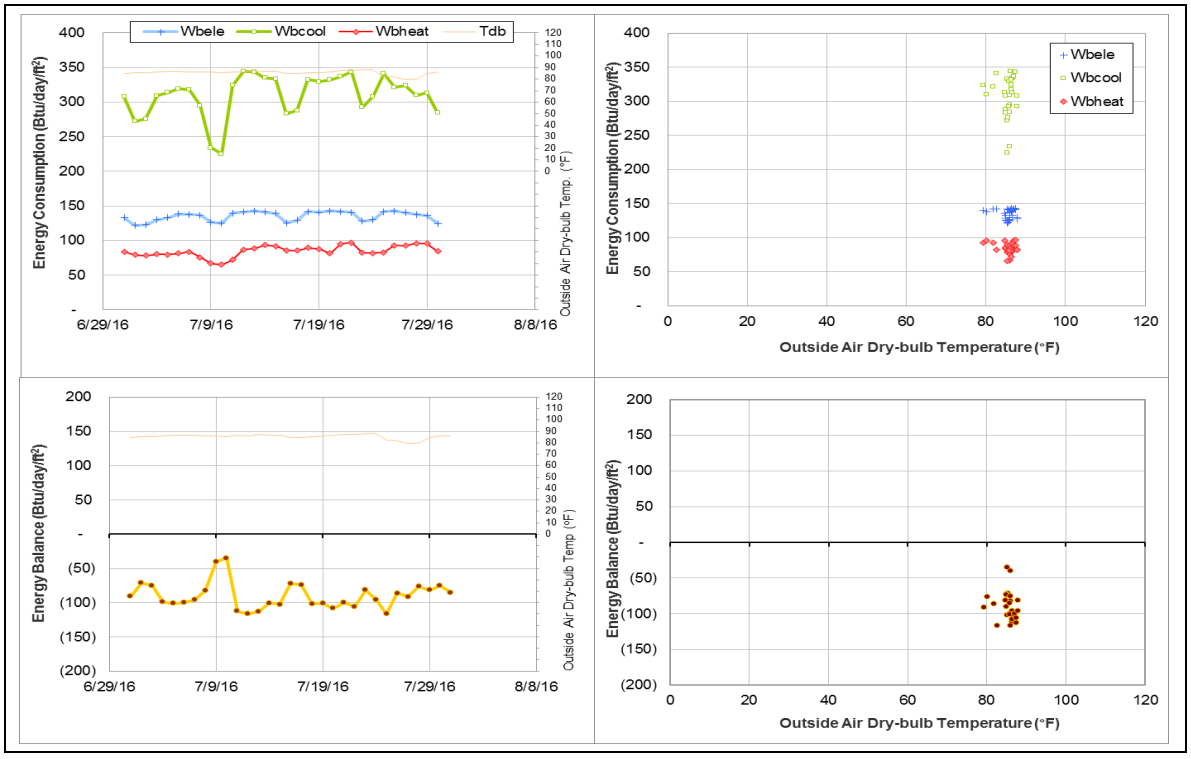
Explanatory Figure: 13 months energy balance plot with original data.



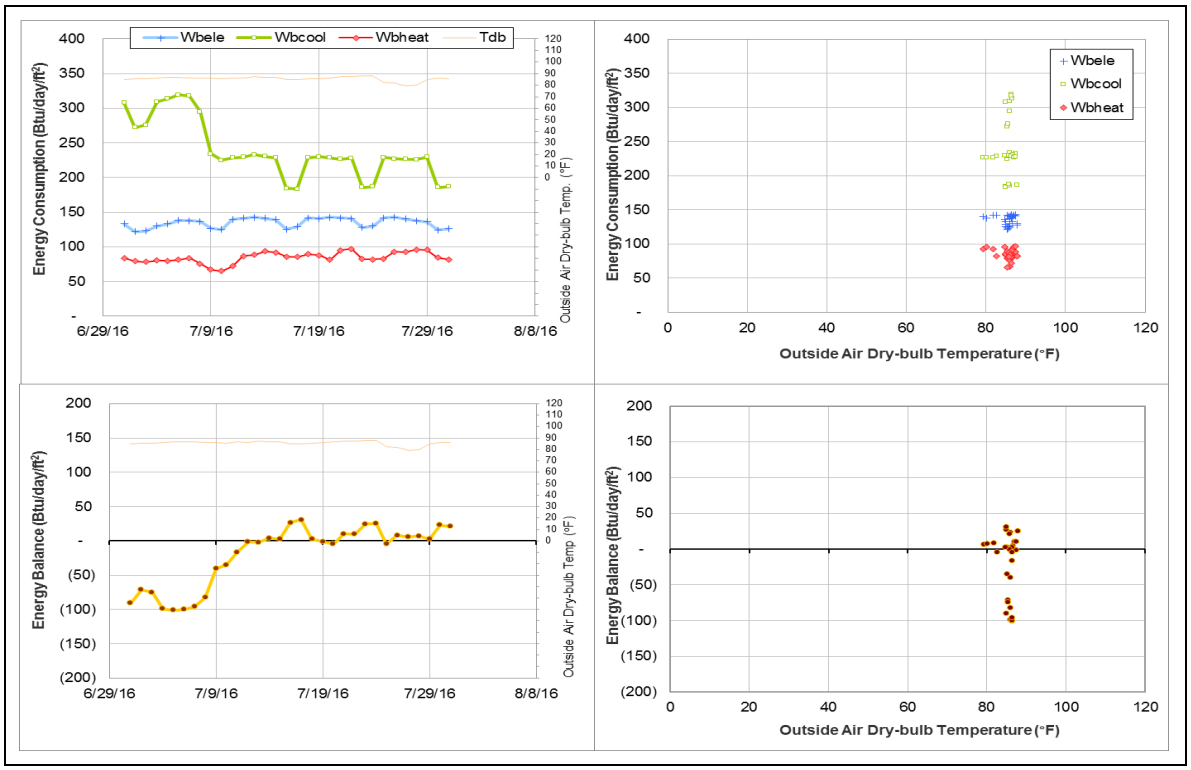
Explanatory Figure: Time series plots of hourly CHW energy consumption, flow rate, and supply and return temperatures from the utilities office. (Meter #005950, July 2016)



Energy balance plot using the original data for the month of analysis.



Energy balance plot using the estimated data for the month of analysis



Heep Laboratory Building (TAMU Bldg #511)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	005821	31	7/1/2016 – 7/31/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption level increased.	6/14/2016 – 7/31/2016
Energy Balance	The energy balance pattern dropped.	6/14/2016 – 7/31/2016

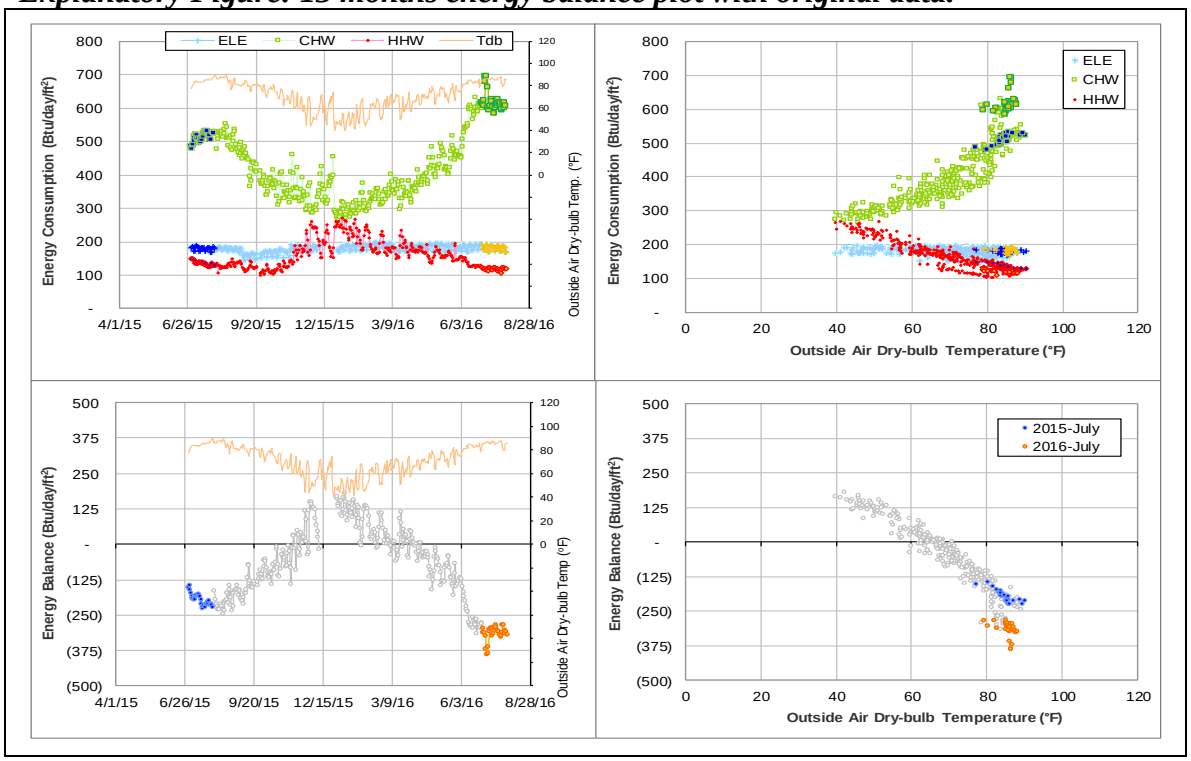
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	005821	7/1/2016 – 7/31/2016	Delta T	Increased

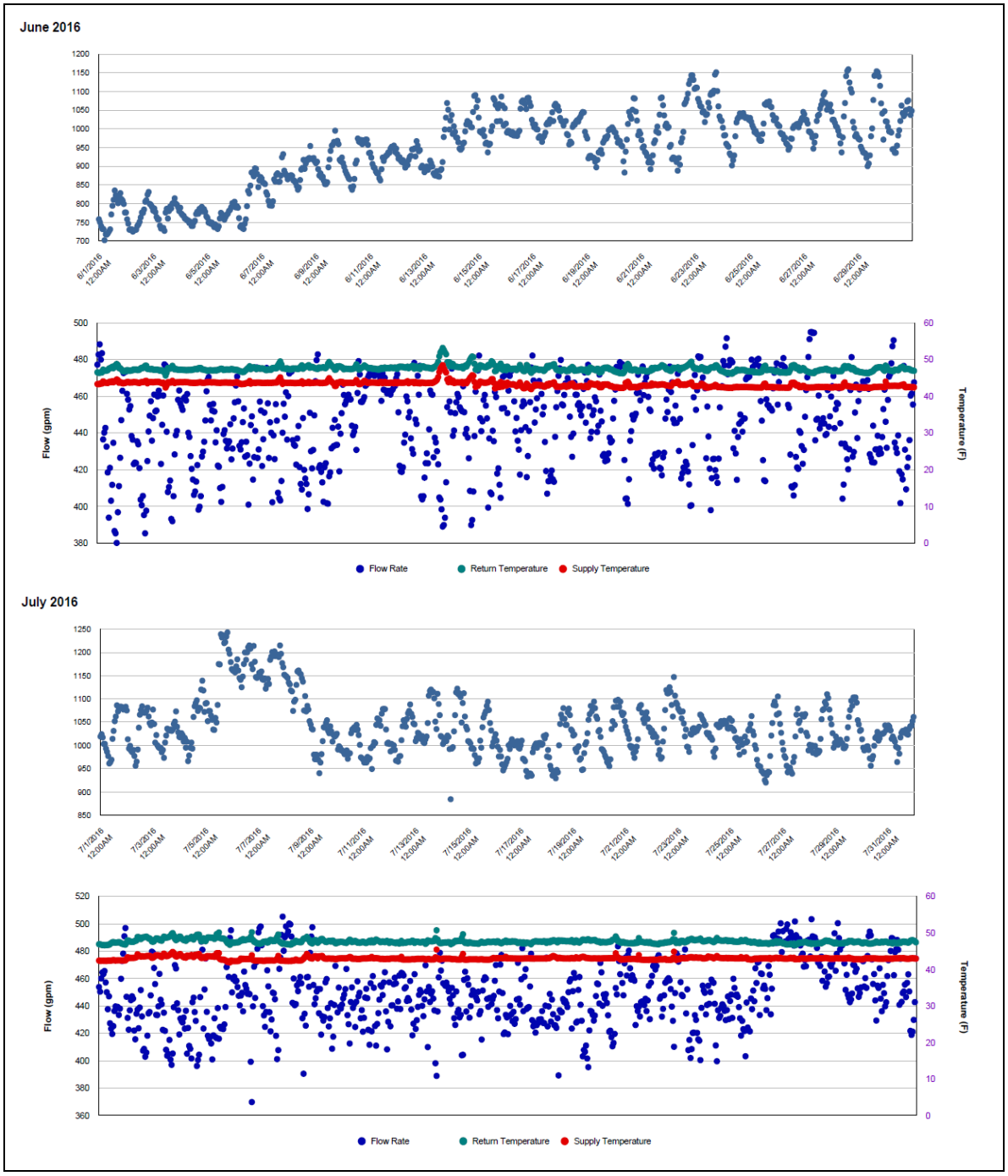
Quantitative descriptions and comments

The CHW consumption increased 100-200 Btu/day/ft^2 in July 2016. This appears to be due to an increase in delta T that started in June 2016. The energy balance pattern also shows a resulting drop, which would put the change-point temperature around 50°F. CHW consumption was estimated for the period 7/1/2016-7/31/2016 by a model.

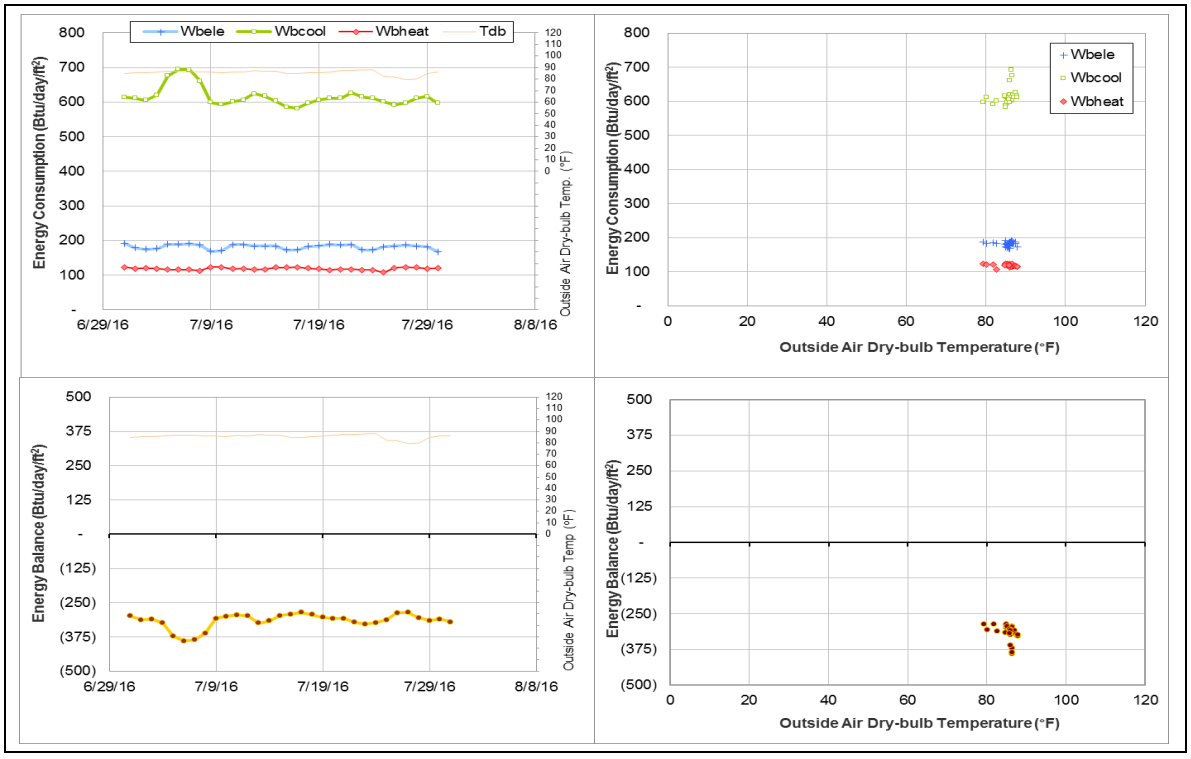
Explanatory Figure: 13 months energy balance plot with original data.



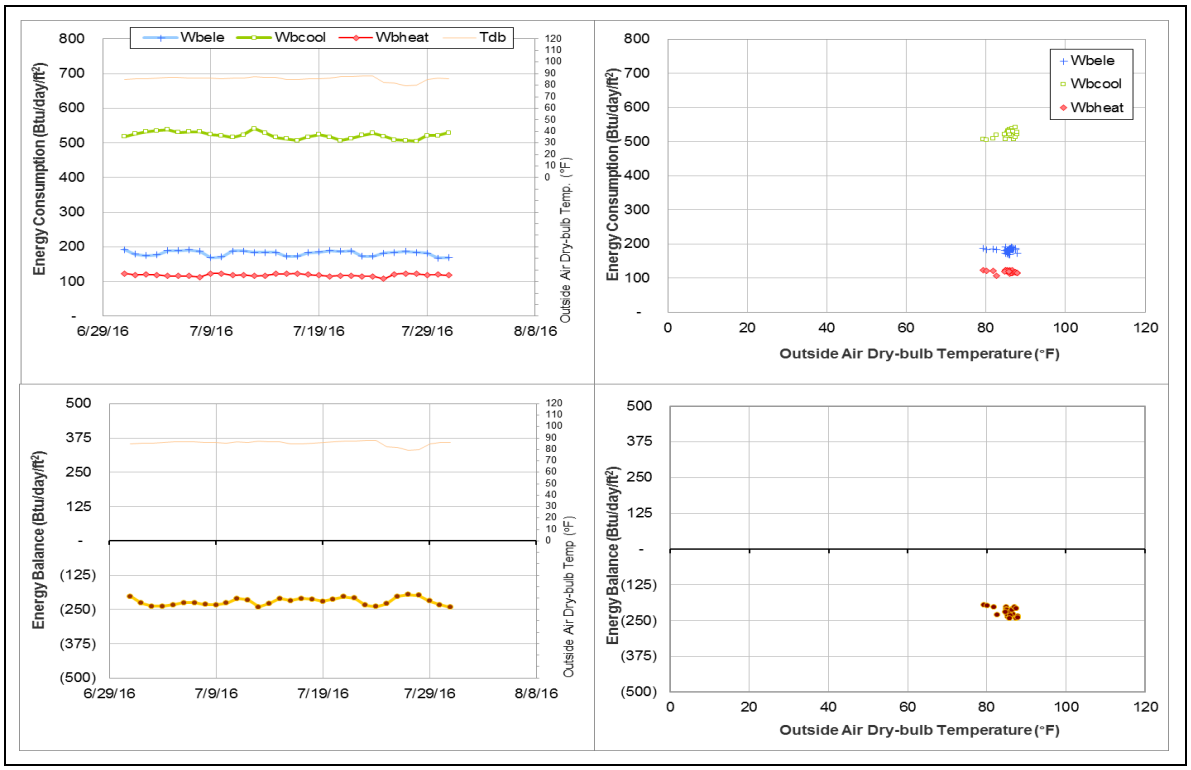
Explanatory Figure: Time series plots of hourly CHW energy consumption, flow rate, and supply and return temperatures from the utilities office. (top: June 2016, bottom: July 2016) Note the gradual increase in delta T starting in June 2016.



Energy balance plot using the original data for the month of analysis.



Energy balance plot using the estimated data for the month of analysis



All Faiths Chapel (TAMU Bldg #512)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	004293	26	7/6/2016 – 7/31/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The energy consumption decreased to near zero.	7/6/2016 – 7/31/2016

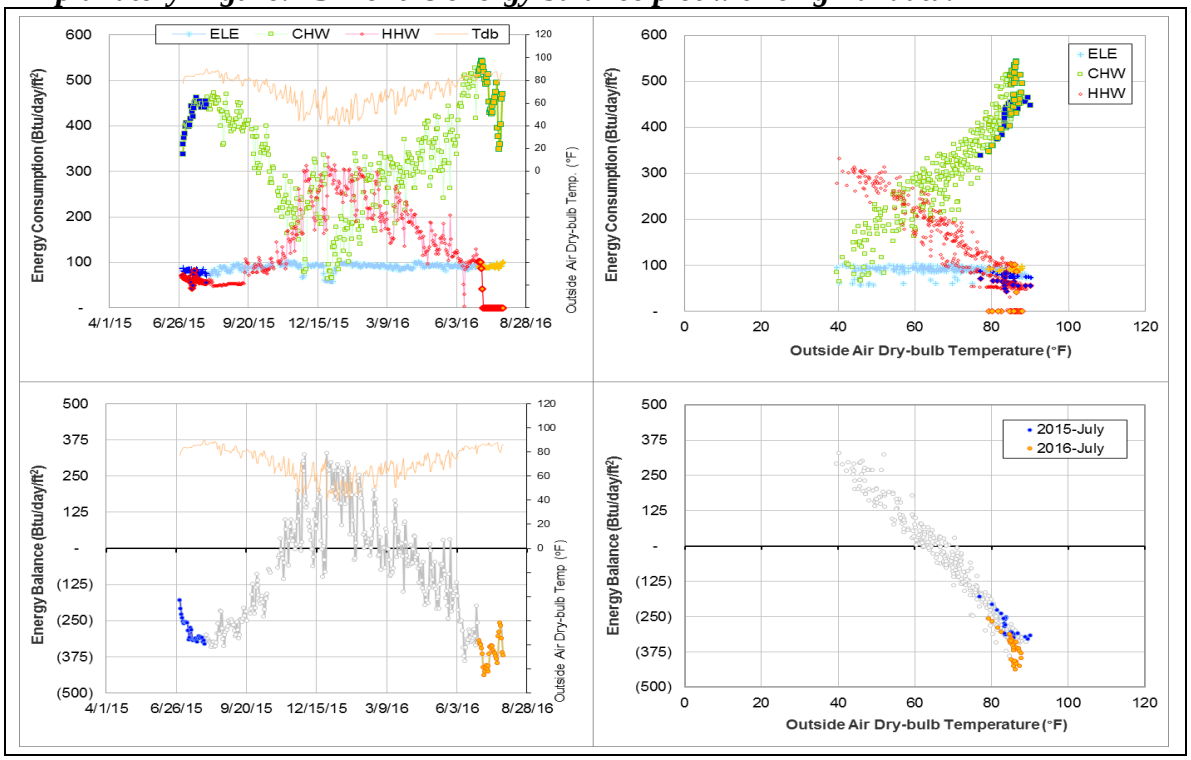
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	004293	7/6/2016 – 7/31/2016	Flow rate	Sudden decrease, nearly zero
			Delta T	Sudden decrease, nearly zero

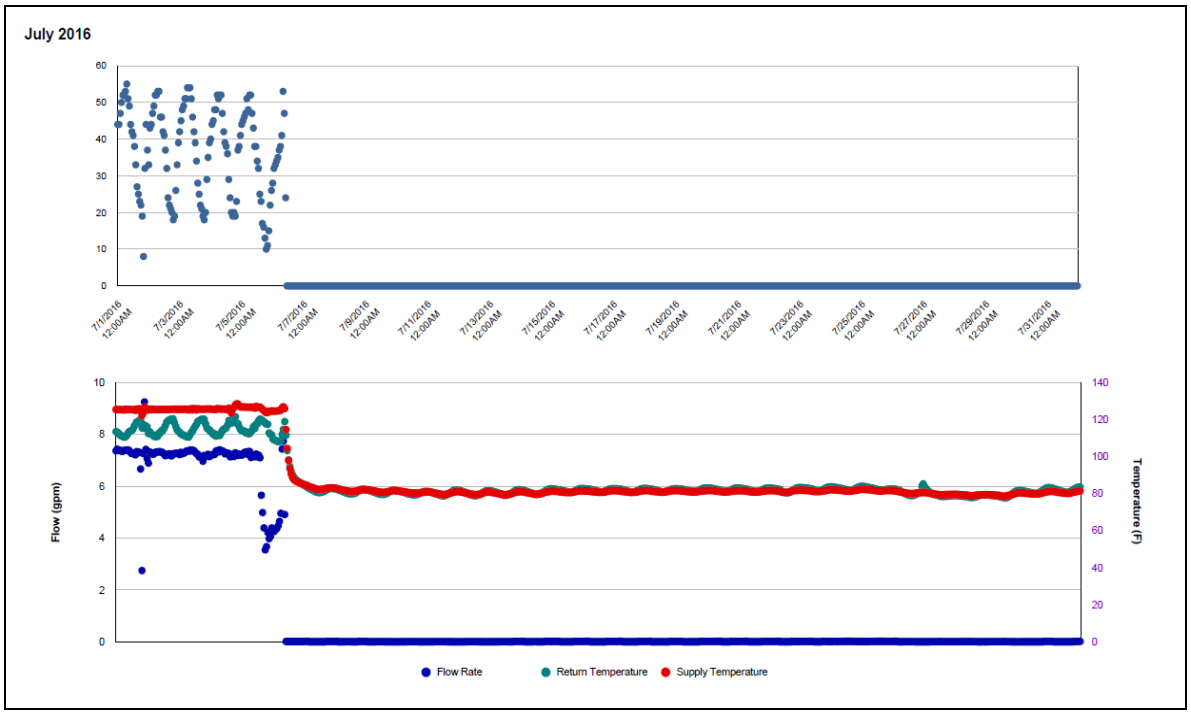
Quantitative descriptions and comments

During 7/6/2016 – 7/31/2016, the HHW flow rate and delta T suddenly decreased to near zero. The HHW was estimated for this period using a model.

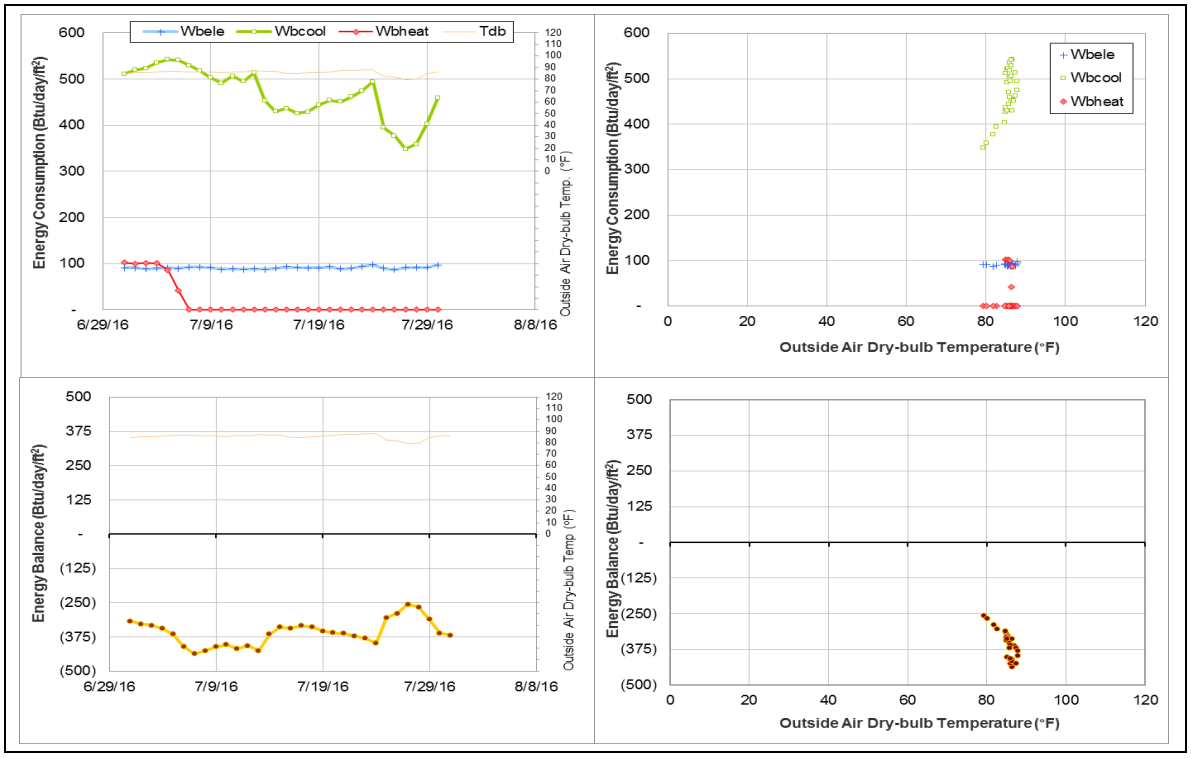
Explanatory Figure: 13 months energy balance plot with original data.



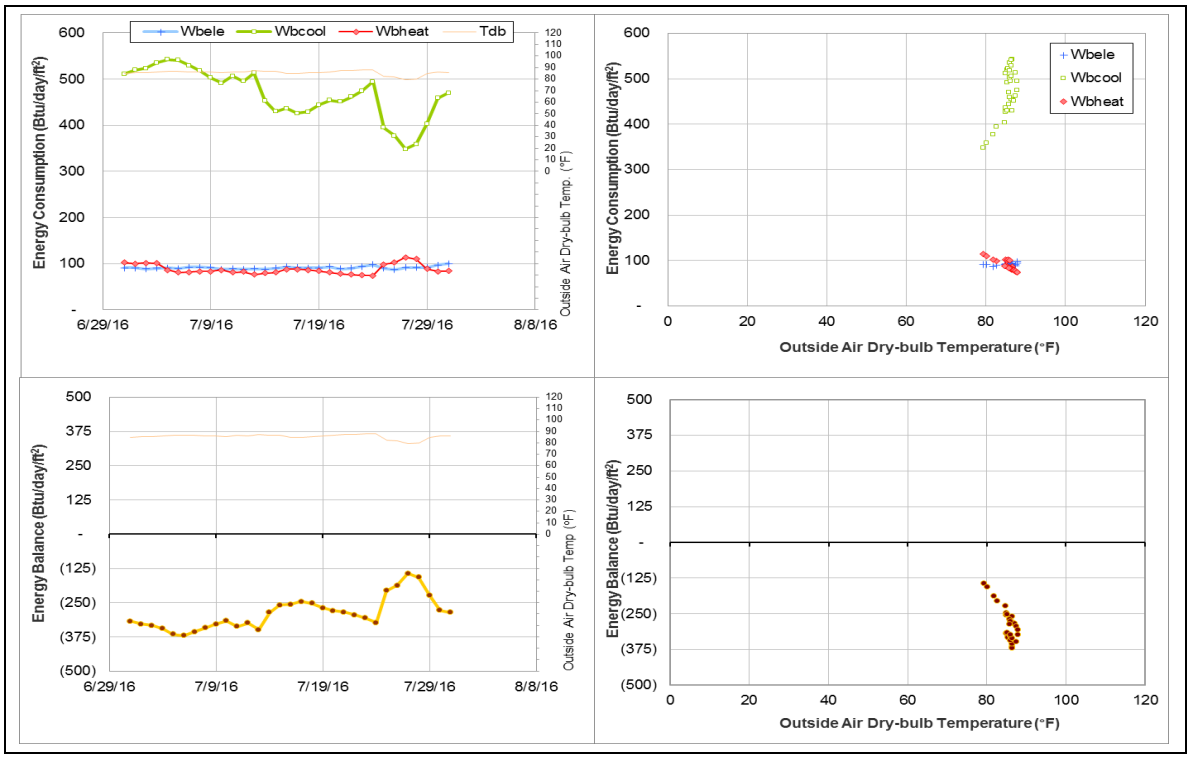
Explanatory Figure: Time series plots of hourly HHW energy consumption, flow, and supply/return temperatures from utilities office. (July 2016)



Energy balance plot using the original data for the month of analysis.



Energy balance plot using the estimated data for the month of analysis



Neeley Residence Hall (TAMU Bldg #652)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	002147	27	7/5/2016 – 7/31/2016	Model
HHW	002151	27	7/5/2016 – 7/31/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption increased largely.	7/5/2016 – 7/31/2016
HHW	The consumption increased largely.	7/5/2016 – 7/31/2016

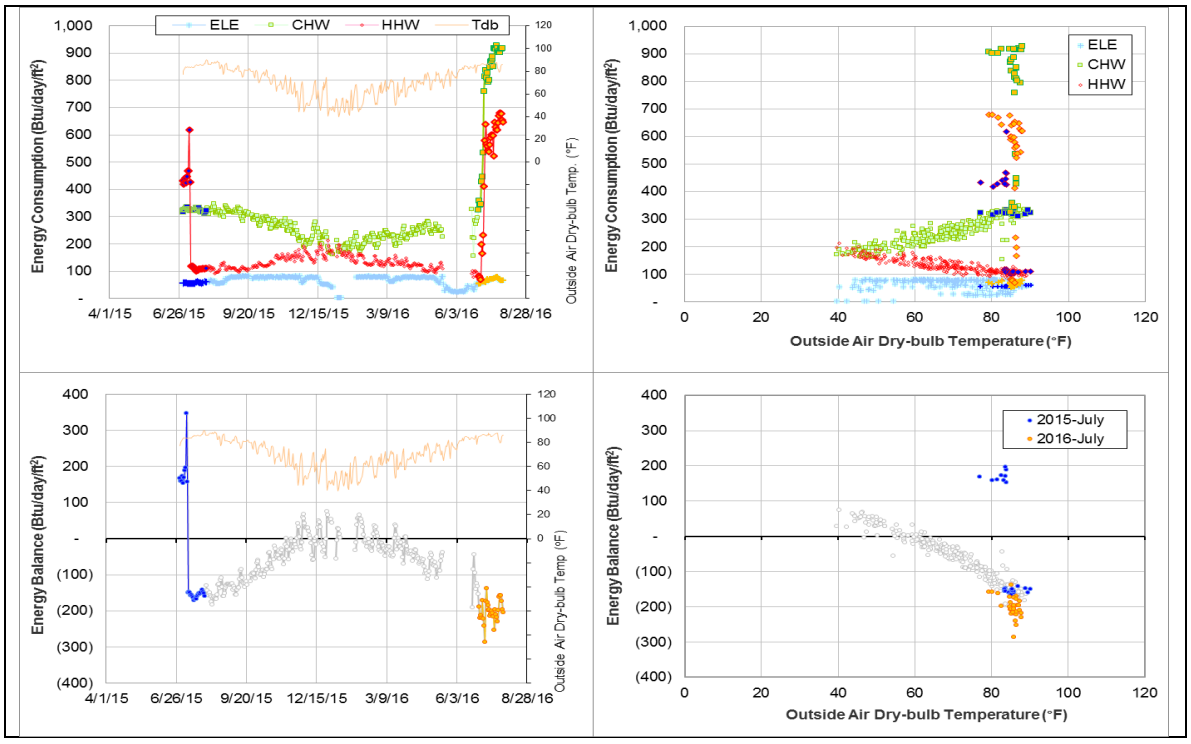
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	002147	7/5/2016 – 7/31/2016	Flow rate	Sudden increase
			Delta-T	Sudden increase
HHW	002151	7/5/2016 – 7/31/2016	Flow Rate	Sudden increase
			Delta-T	Sudden increase

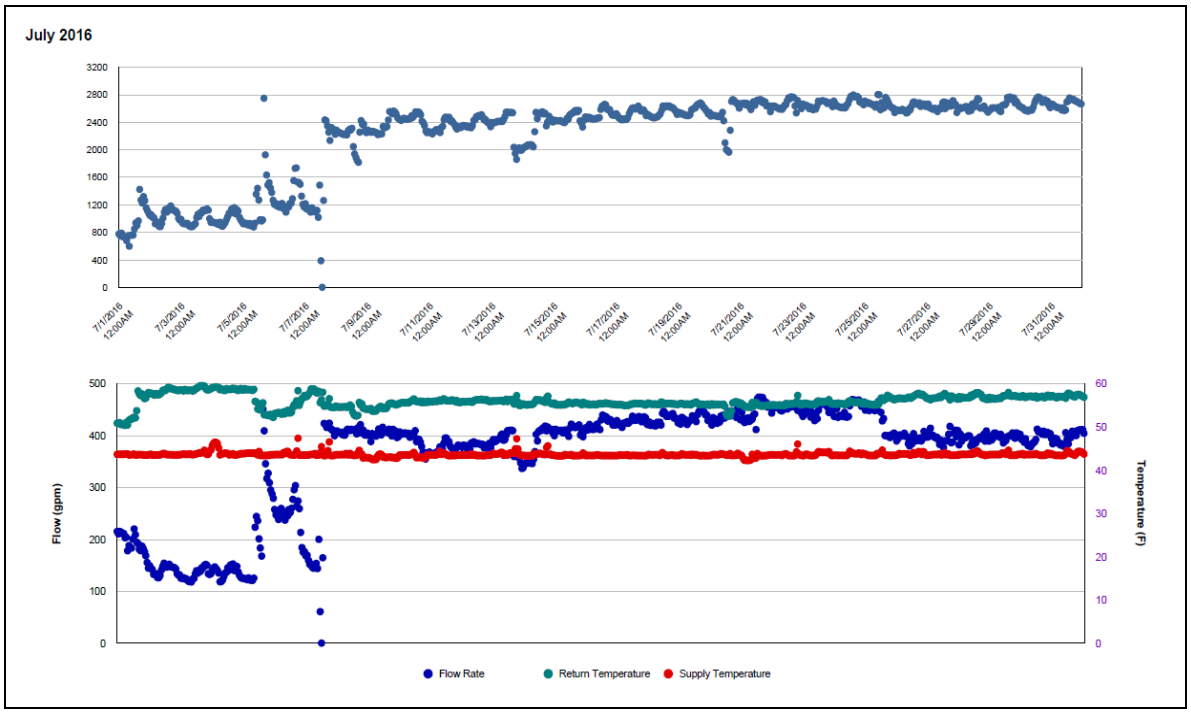
Quantitative descriptions and comments

During 7/5/2016 – 7/31/2016, both the CHW and HHW meters showed a large increase in flow rate and delta-T. The consumption doubled for CHW and HHW during this period. CHW and HHW consumption was estimated by model for this period.

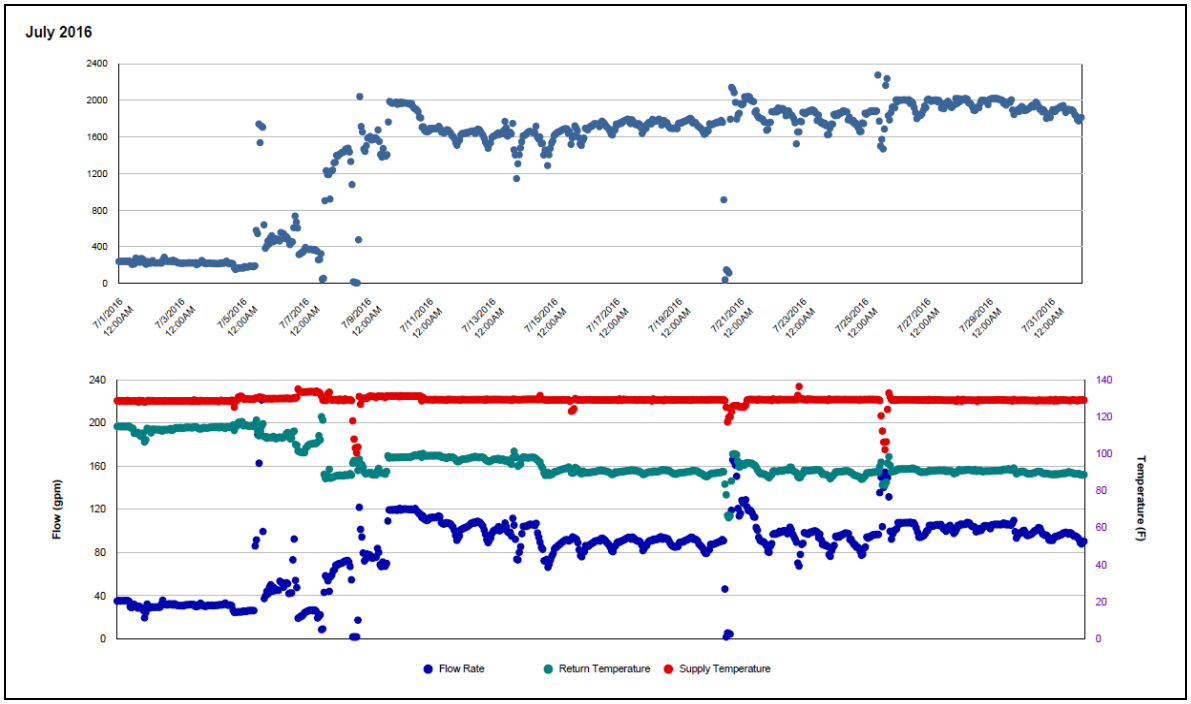
Explanatory Figure: 13 months energy balance plot with original data



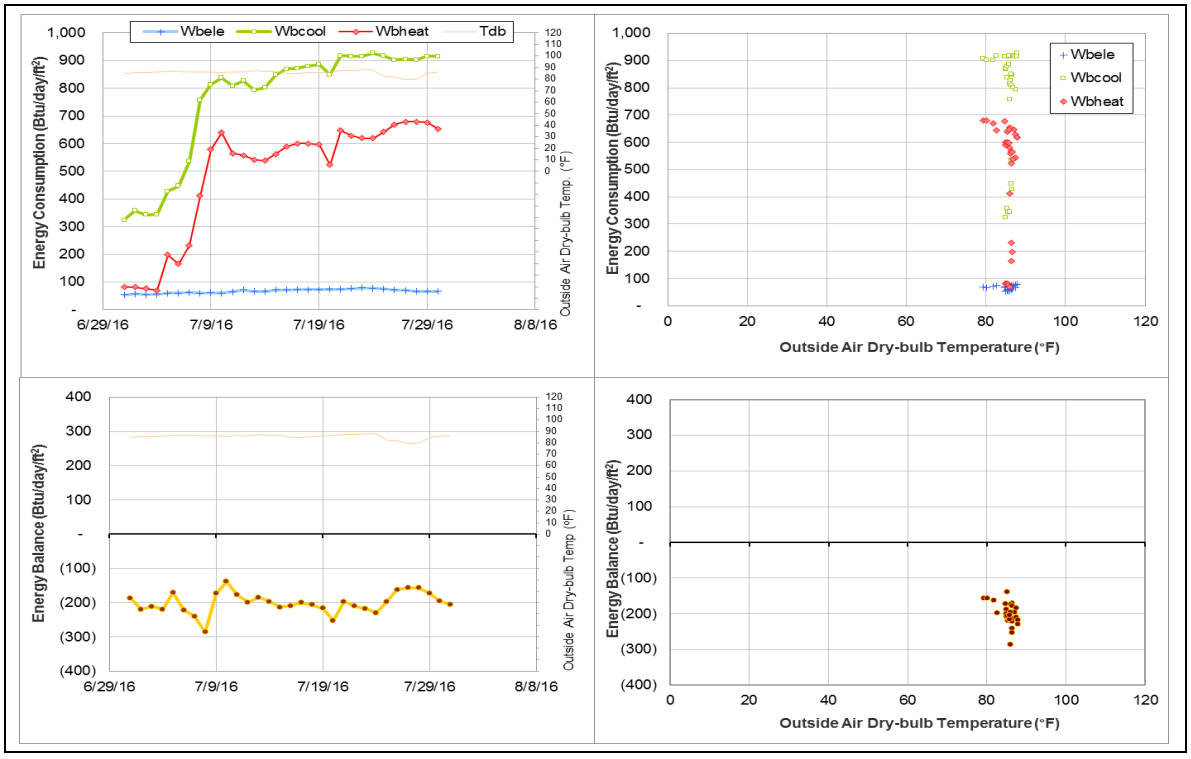
Explanatory Figure: Time series plots of hourly CHW energy consumption, flow, and supply/return temperatures from utilities office. (July 2016)



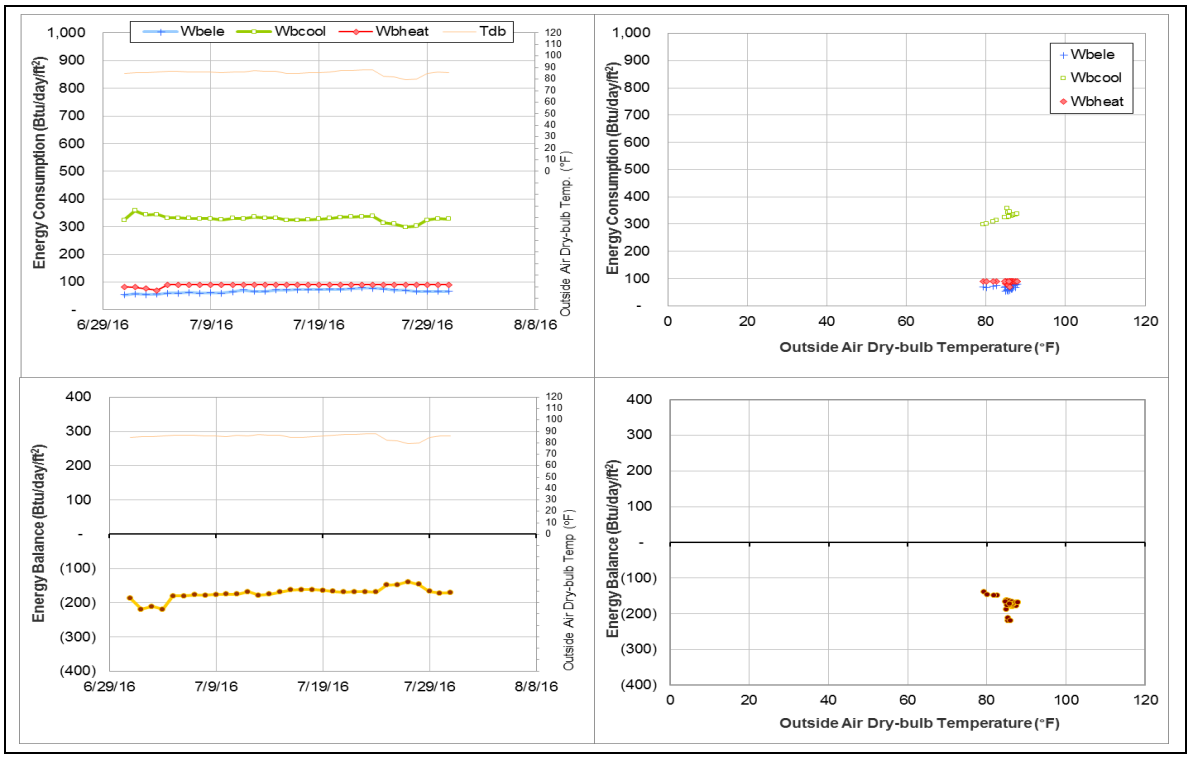
Explanatory Figure: Time series plots of hourly HHW energy consumption, flow, and supply/return temperatures from utilities office. (July 2016)



Energy balance plot using the original data for the month of analysis.



Energy balance plot using the estimated data for the month of analysis



McNew Laboratory (TAMU Bldg #740)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	005968	30	7/1/2016 – 7/31/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
Energy Balance	The level decreased and the cross-point of temperature is too low.	3/22/2013–ongoing
HHW	The consumption level decreased by 60% or more.	3/22/2013–ongoing

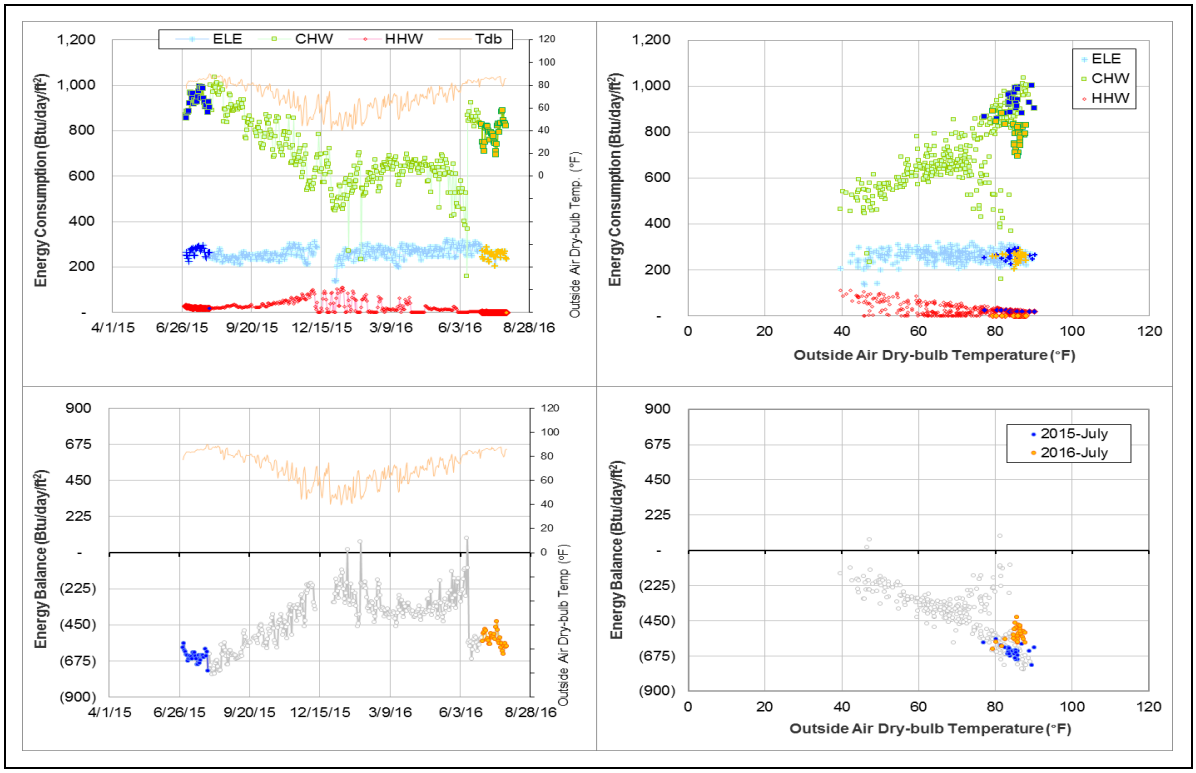
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	005968	3/22/2013–1/1/2014 6/1/2016- -ongoing	Flow Rate	Decreased largely
		1/1/2014 - ongoing	Delta-T	Small

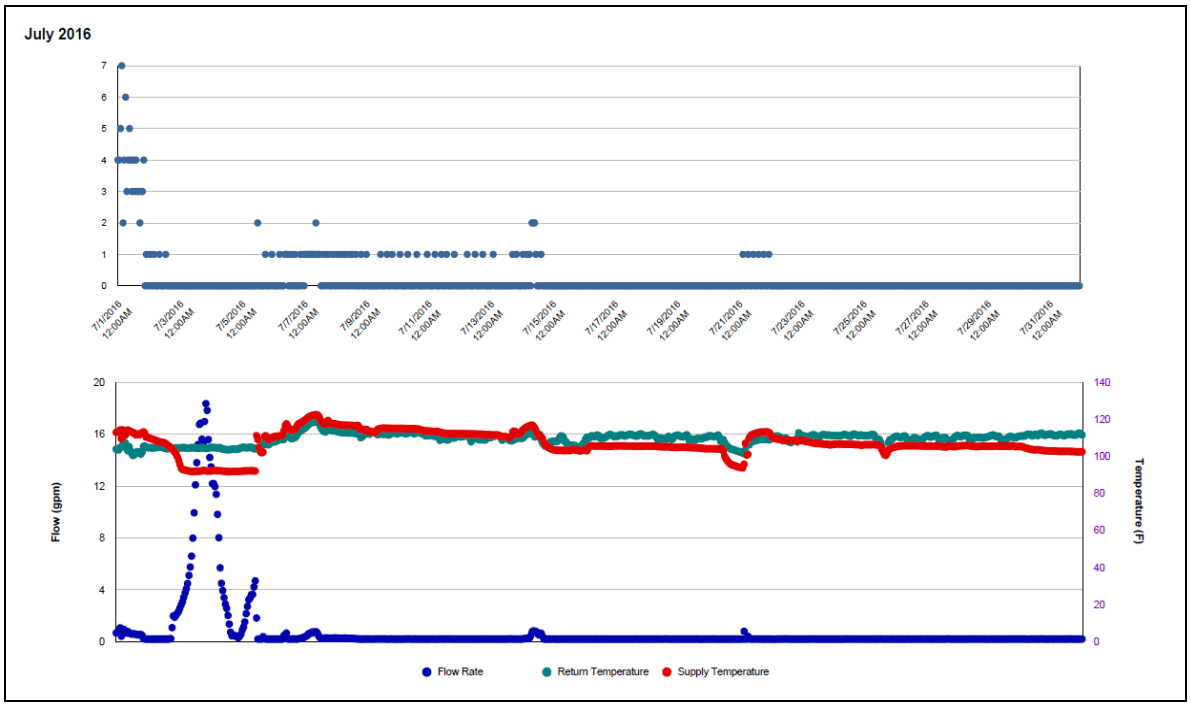
Quantitative descriptions and comments

The energy balance level decreased to around 40˚F cross-point temperature after 3/22/2013 due to the decreased of the HHW consumption. The HHW consumption for current month is about 200 Btu/day/ft^2 lower than that before 3/22/2013. The current Delta-T for HHW meter is too small and at times negative. It is suggested to investigate this meter. The HHW was estimated by a model.

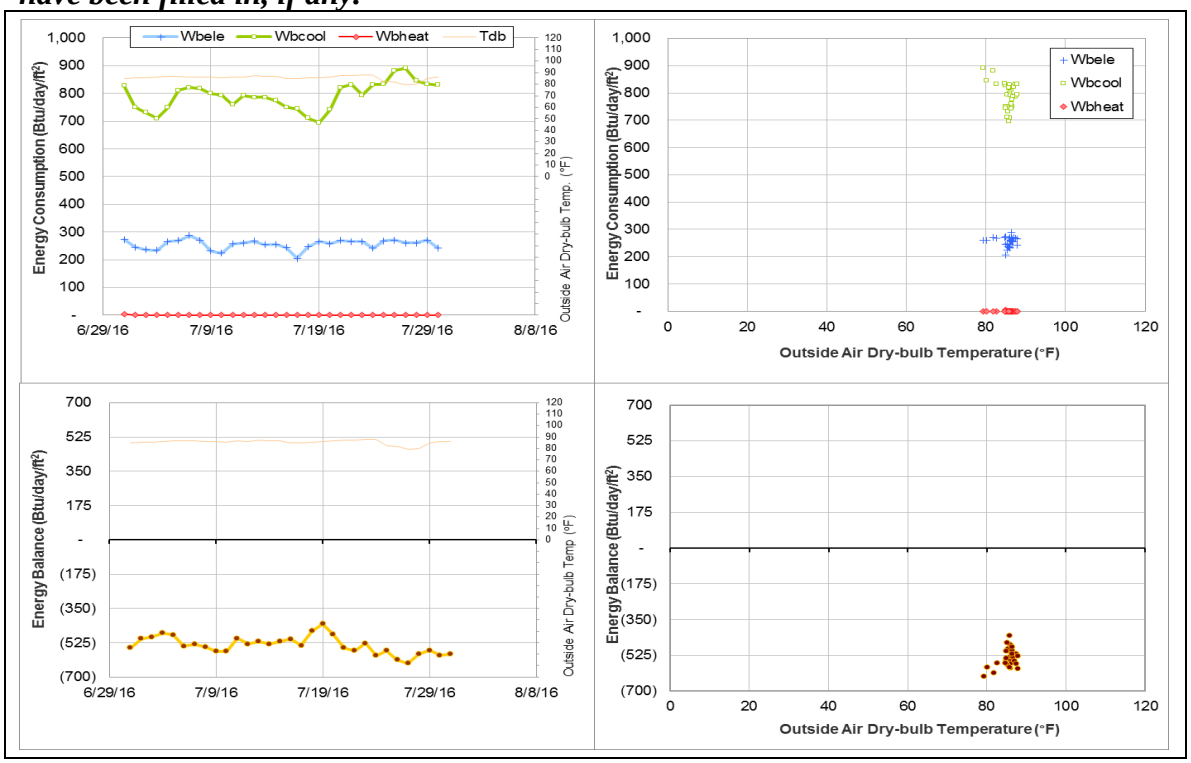
Explanatory Figure: 13 months energy balance plot with original data



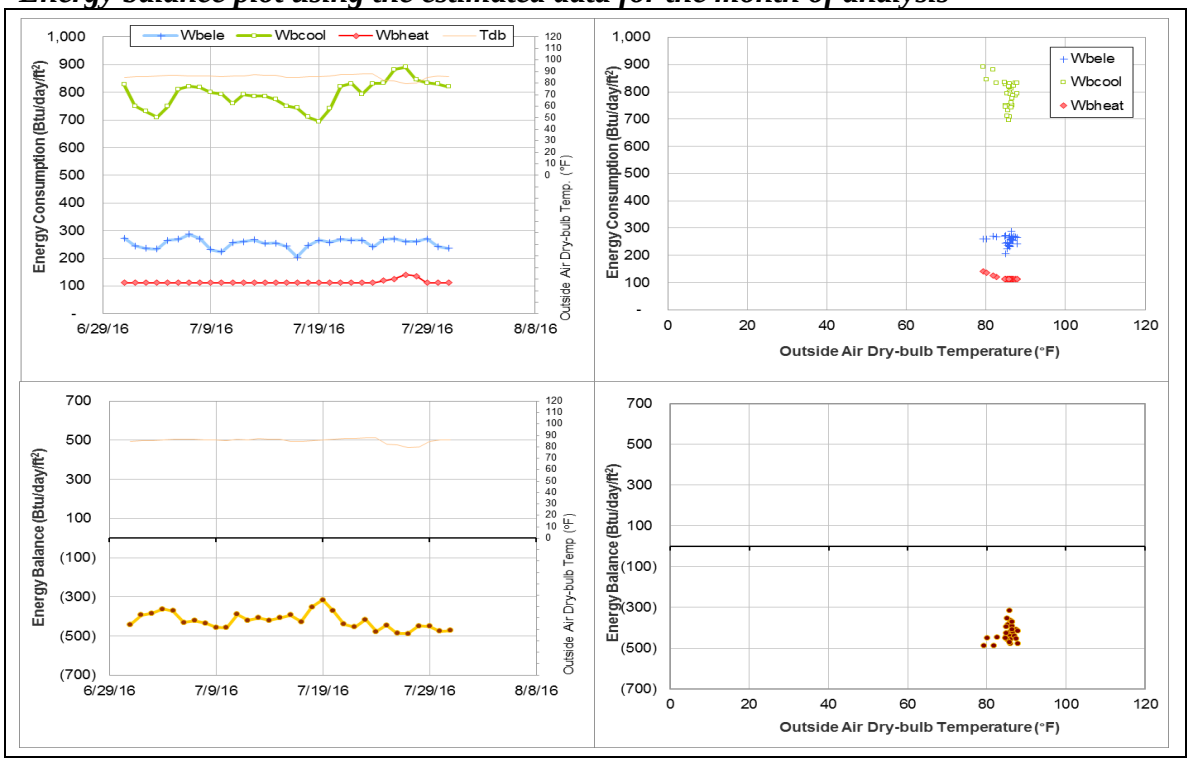
Explanatory Figure: Time series plots of hourly HHW energy consumption, flow rate, and supply and return temperatures from utilities office. (July 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



TVMC-Small Animal Building (TAMU Bldg #880)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	005958	31	7/1/2016 – 7/31/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The CHW consumption level has decreased.	4/1/2016–ongoing

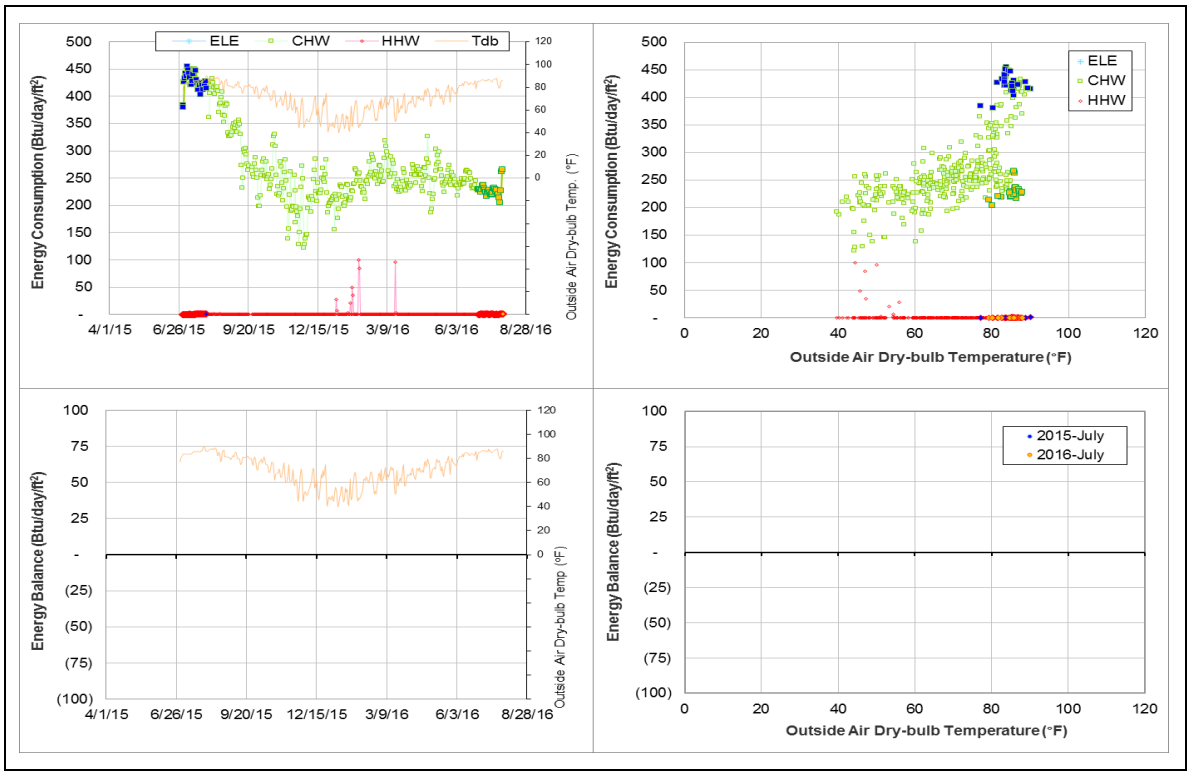
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	005958	4/1/2016 – ongoing	Delta T	Small

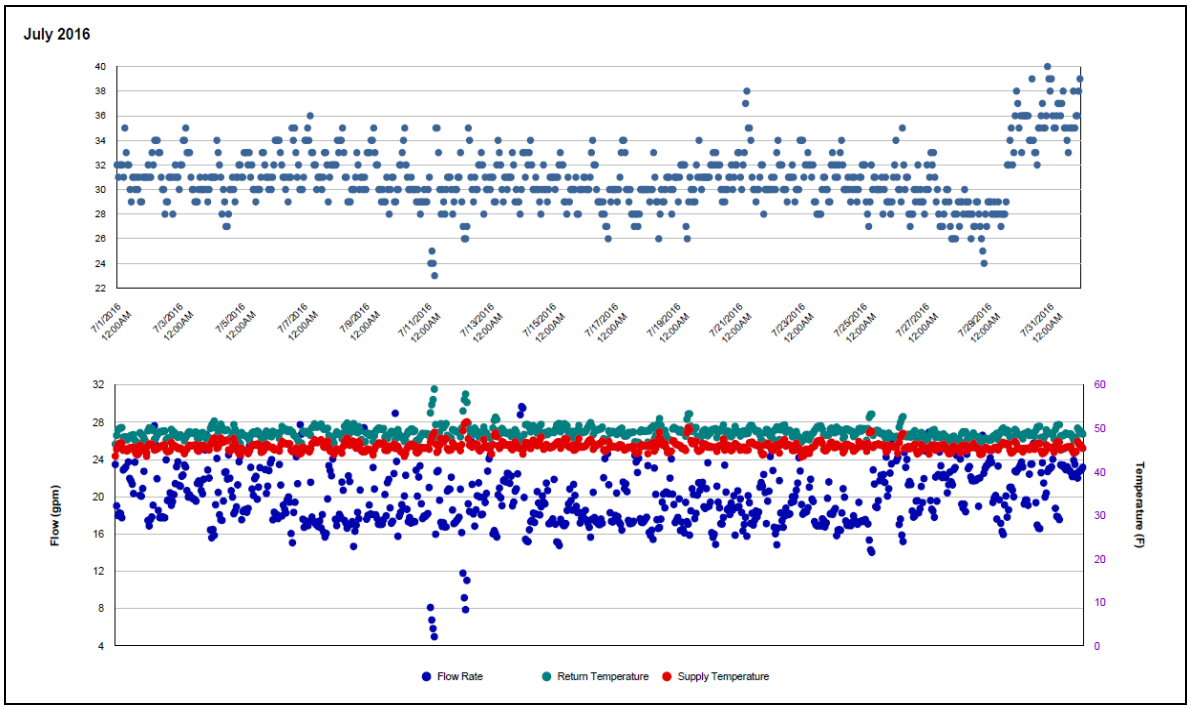
Quantitative descriptions and comments

The monthly CHW consumption has been decreasing since April. The recent energy consumption pattern has flattened out in higher temperatures. The consumption levels for April through July are at the same level as Feb and Mar. It looks like the delta T has not increased since winter, almost half of what it was last summer. The CHW for this month has been estimated using a model.

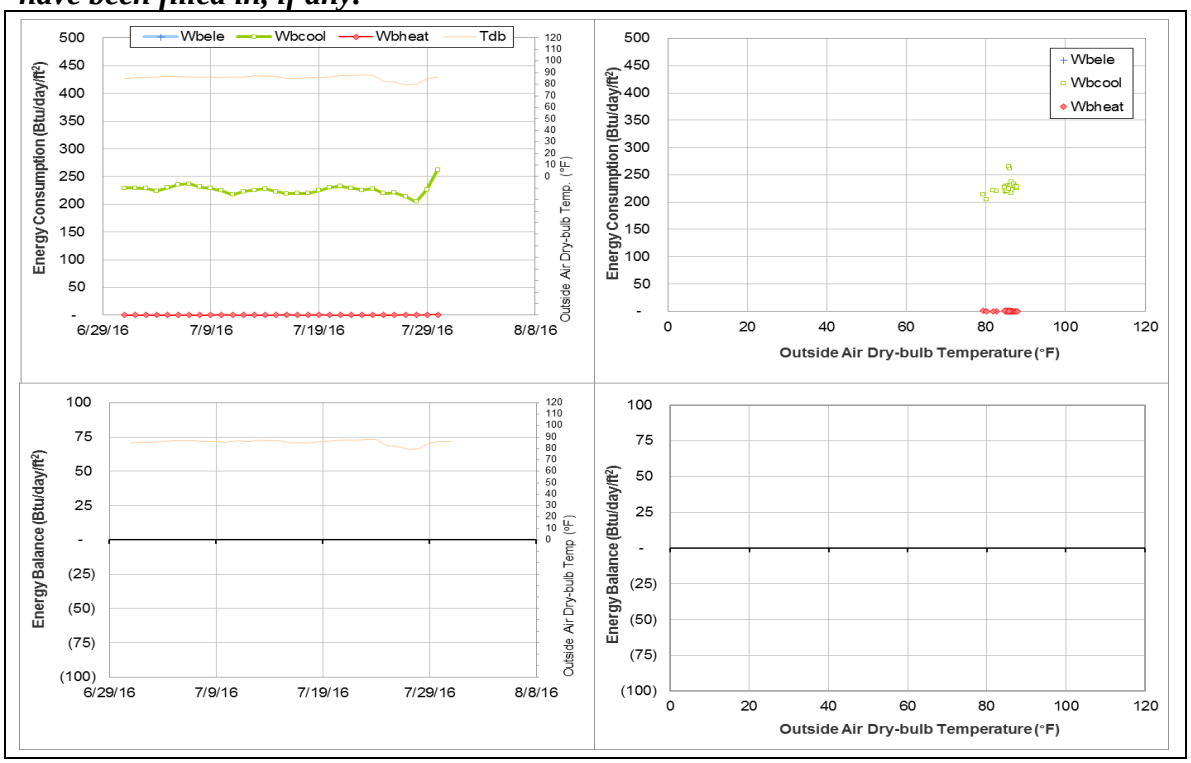
Explanatory Figure: 13 months energy balance plot with original data



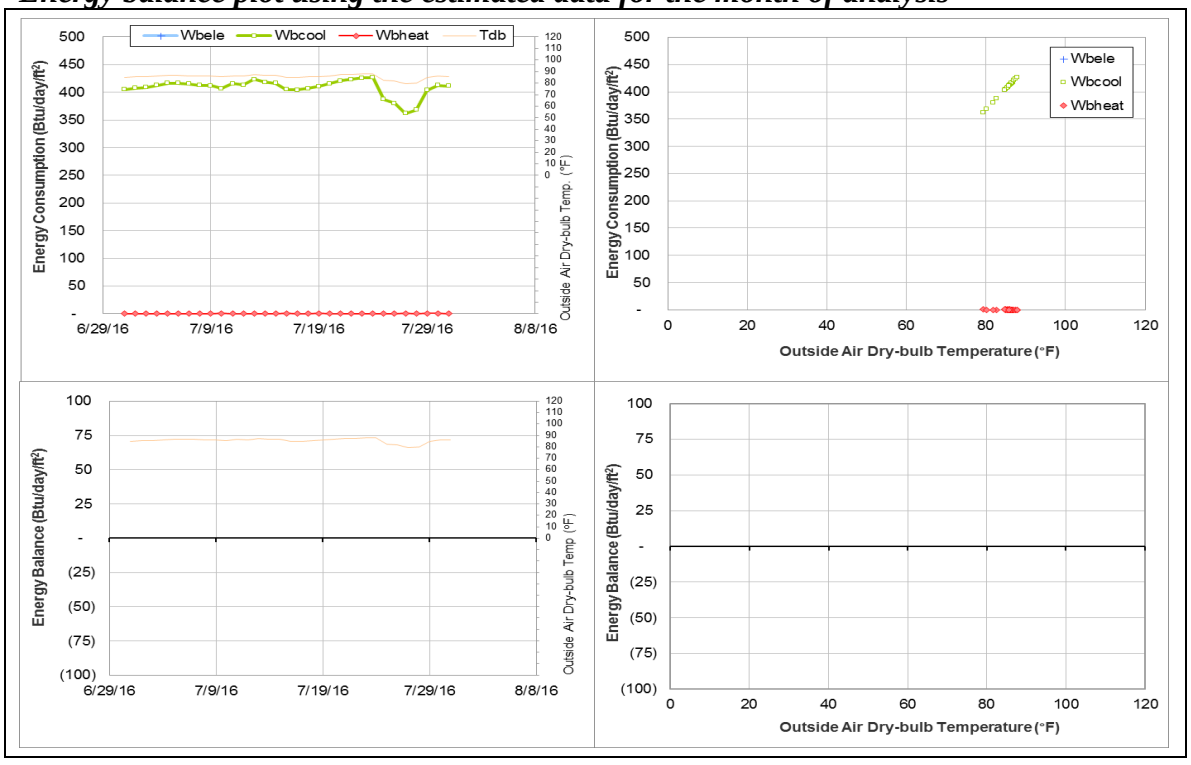
Explanatory Figure: Time series plots of hourly CHW energy consumption, flow rate, and supply and return temperatures from utilities office. (July 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Biochemistry-Biophysics Building (TAMU Bldg #1509)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	003777	11	7/1/2016 – 7/9/2016 7/29/2016 – 7/30/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption decreased.	7/1/2016 – 7/9/2016
	The consumption decreased.	7/29/2016 – 7/30/2016

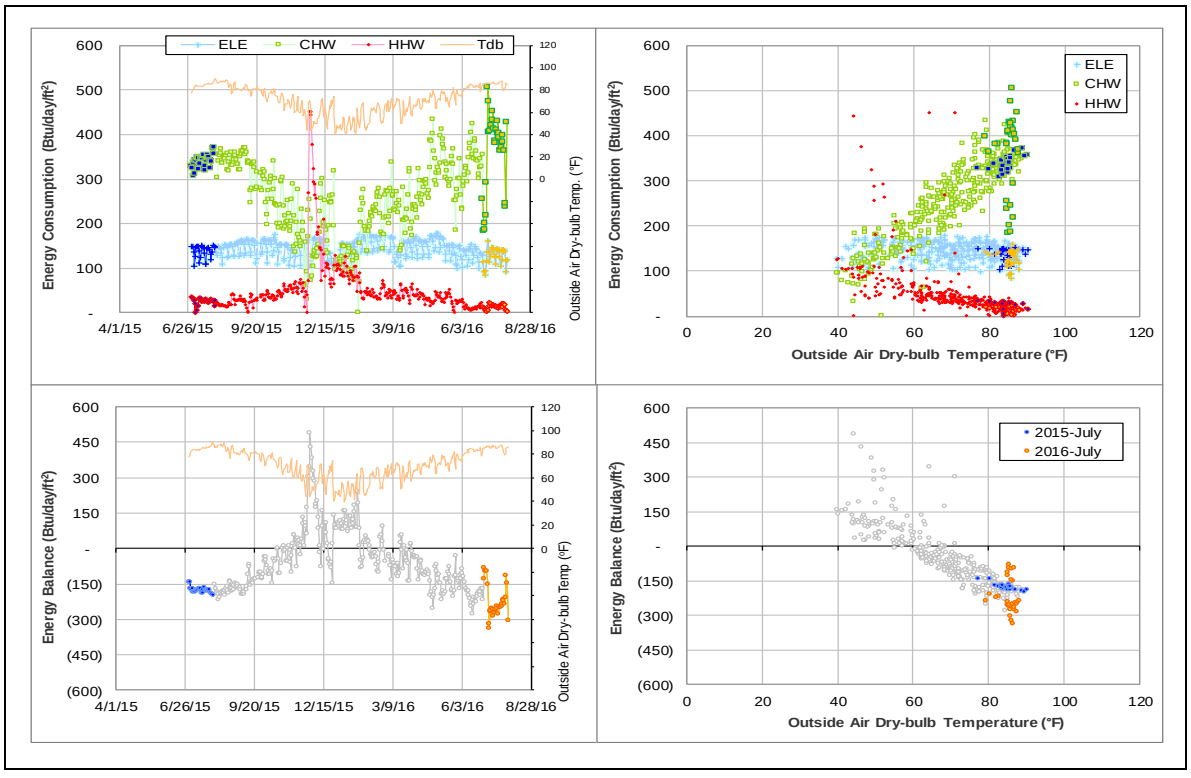
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	003777	7/1/2016 – 7/9/2016	Flow rate	Decreased
		7/29/2016 – 7/30/2016	Flow rate	Increased
			Return temperature	Decreased

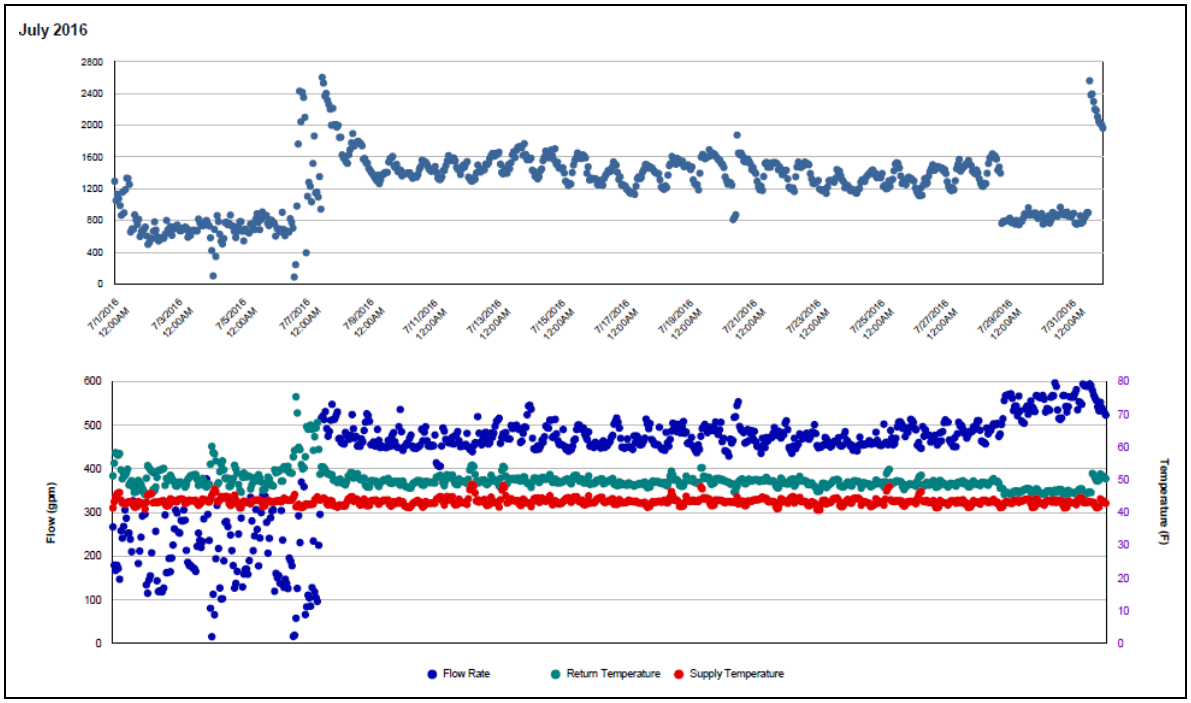
Quantitative descriptions and comments

CHW daily consumption decreased from approximately 400 Btu/day/ft^2 to 200 Btu/day/ft^2 during 7/1 – 7/9/2016 due to flow rate drop, and 7/29 – 7/30/2016 due to flow rate increase and drop of return temperature. The consumption is estimated by a model.

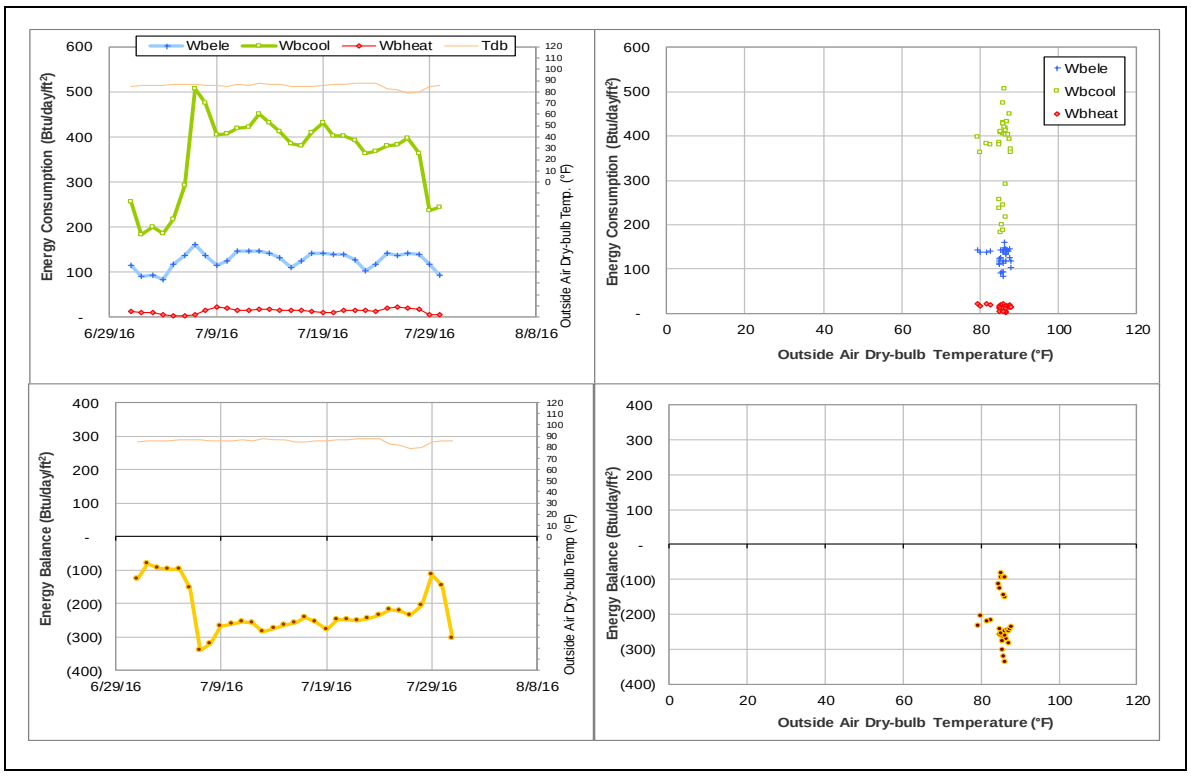
Explanatory Figure: 13 months energy balance plot with original data



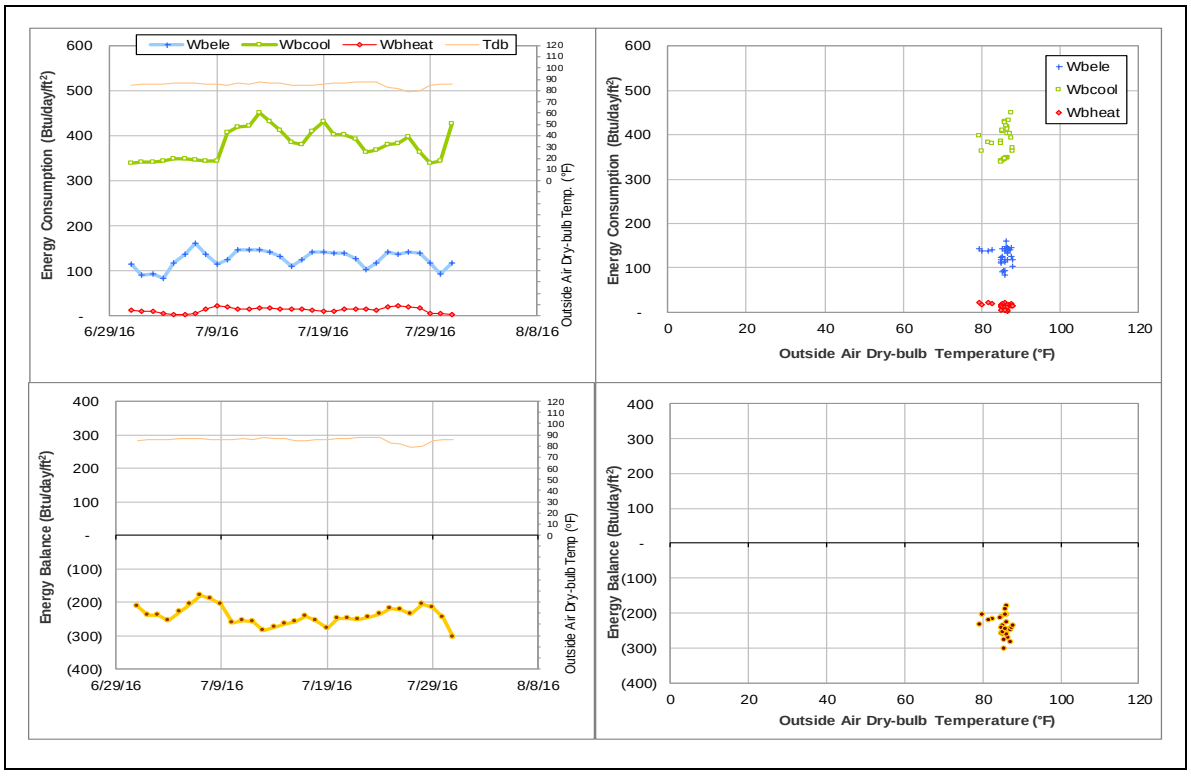
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (CHW during July 2016)



Energy balance plot using the original data for the month of analysis.



Energy balance plot using the estimated data for the month of analysis



Southern Crop Improvement Greenhouse (TAMU Bldg #1512)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
ELE	005931	31	7/1/2016 – 7/31/2016	Model

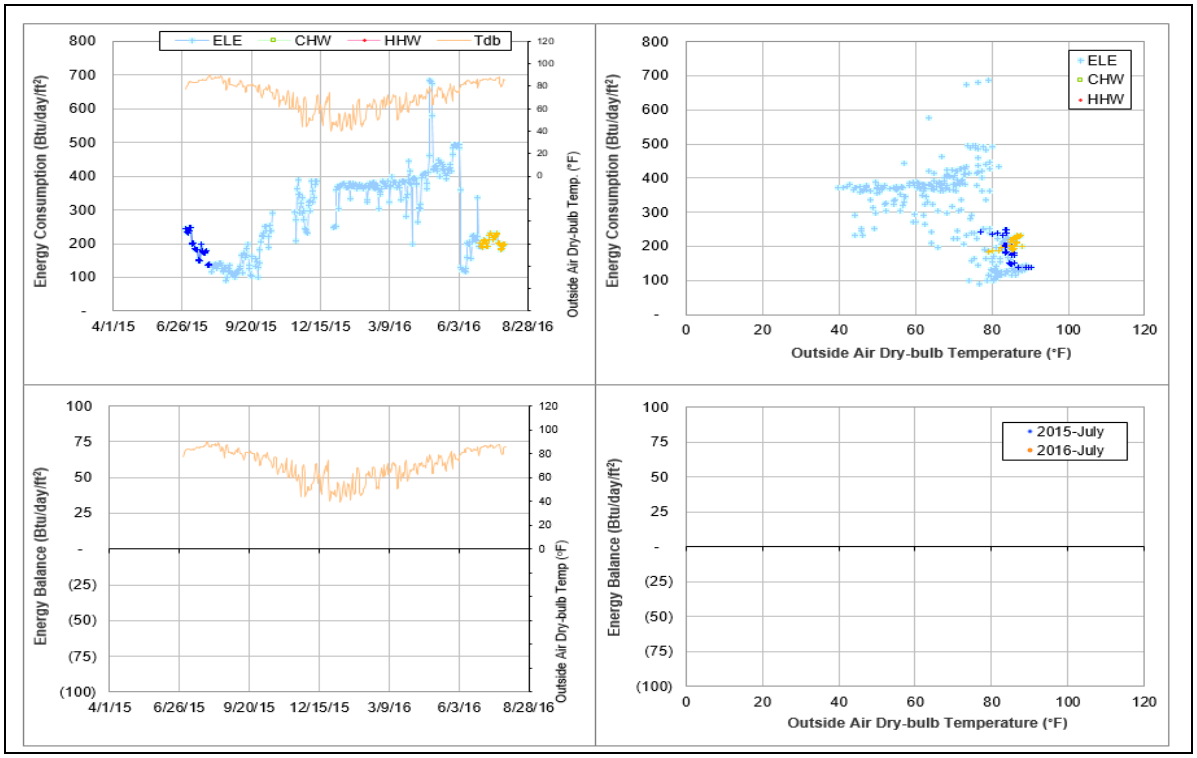
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	The consumption decreased.	7/22/2015 – 10/3/2015
	The consumption increased.	11/13/2015 – 6/6/2016
	The consumption decreased.	6/7/2016 - ongoing

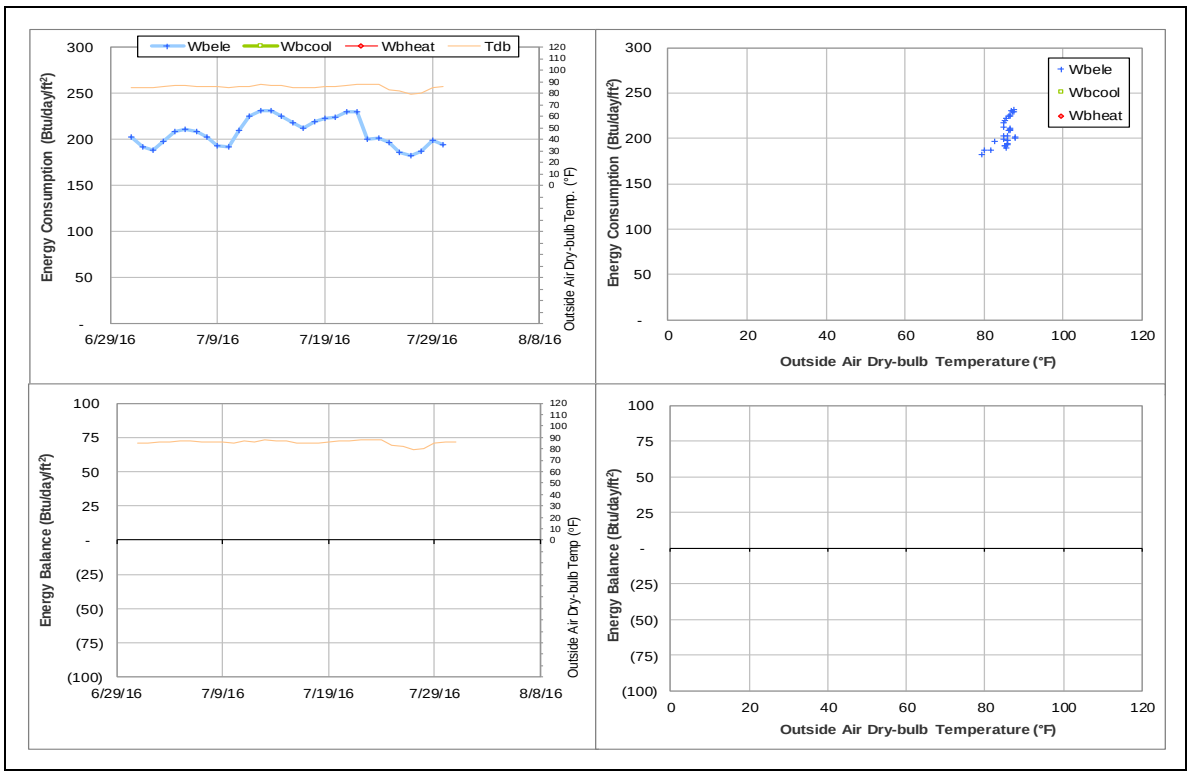
Quantitative descriptions and comments

The electricity consumption level changed frequently since July 2015. The consumption for entire month was estimated by a model based on the data during 7/1/2014 – 6/30/2015.

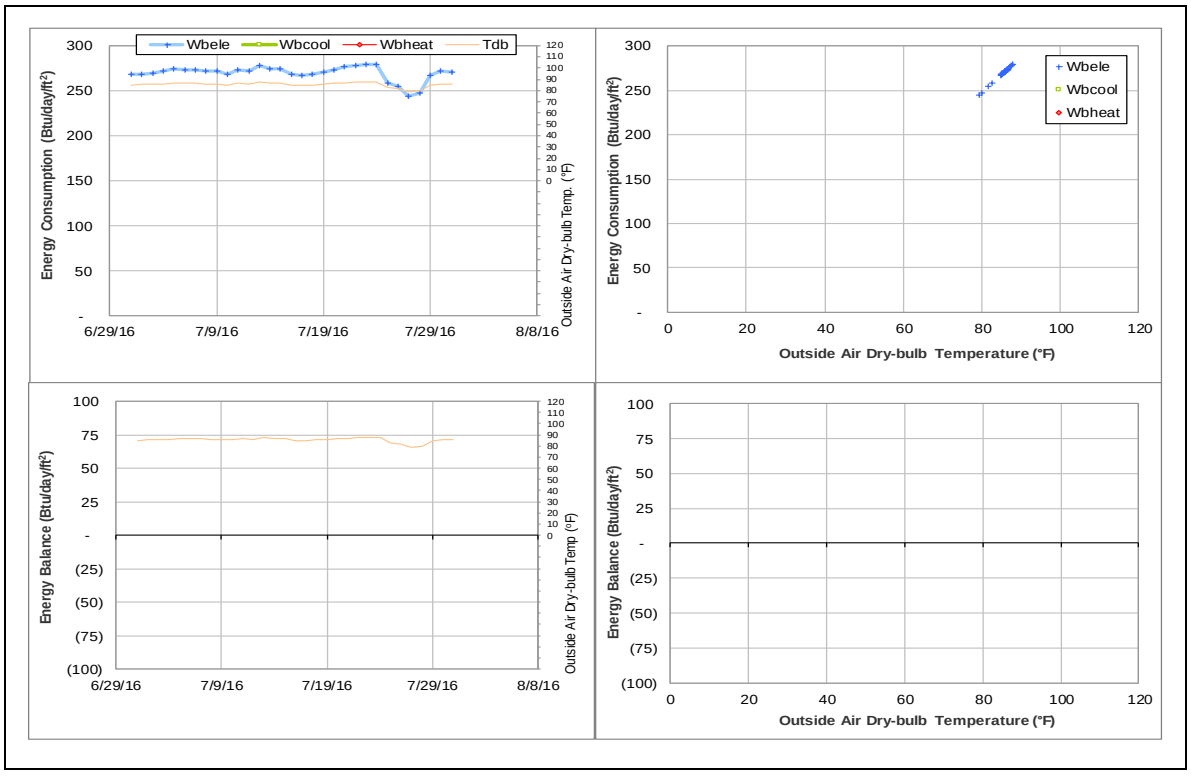
Explanatory Figure: 13 months energy balance plot with original data



Energy balance plot using the original data for the month of analysis.



Energy balance plot using the estimated data for the month of analysis



TX School of Rural Public Health (TAMU Bldg # 1518, 1519, 1520)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
ELE	005274	31	7/1/2016 – 7/31/2016	Switch with 005275
ELE	005275	31	7/1/2016 – 7/31/2016	Switch with 005274
HHW	005298	17	7/1/2016 – 7/2/2016 7/6/2016 7/8/2016 – 7/10/2016 7/13/2016 – 7/15/2016 7/20/2016 – 7/26/2016 7/30/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE (005274)	The consumption level increased largely.	8/14/2015 - ongoing
ELE (005275)	The consumption level decreased largely.	8/14/2015 - ongoing
HHW (005298)	The consumption dropped for a short period.	6/21/2016 – 7/2/2016 7/6/2016 7/8/2016 – 7/10/2016 7/13/2016 – 7/15/2016 7/20/2016 – 7/26/2016 7/30/2016

Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	005298	6/21/2016 – 7/2/2016 7/6/2016 7/8/2016 – 7/10/2016 7/13/2016 – 7/15/2016 7/20/2016 – 7/26/2016 7/30/2016	Flow rate	Decreased to zero

Comments

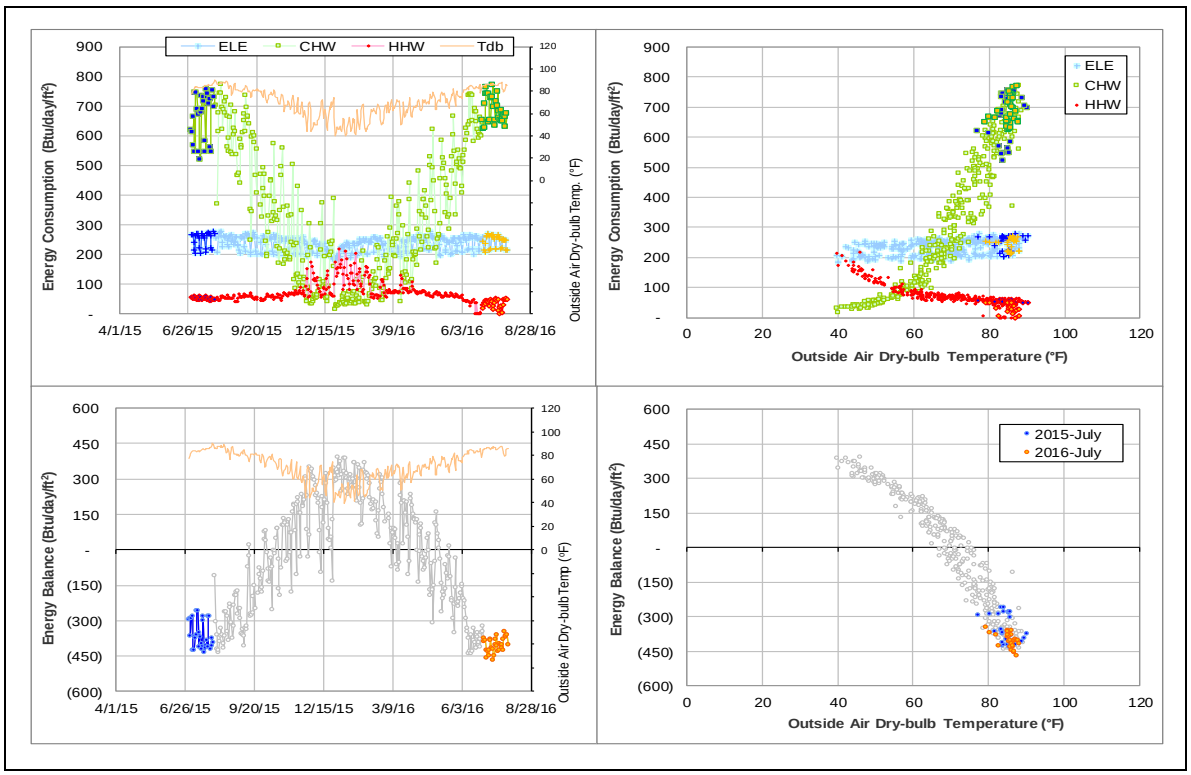
ELE meter (ID# 005274) is serve for TX School of Rural Public Health B and ELE meter (ID# 005275) is for TX School of Rural Public Health C.

The ELE consumption levels for these two meters have a sudden change on 8/14/2015. The consumption level for meterID 005274 increased by approximate 80 kWh/h (~ 100%) and the consumption level for meter ID 005275 decreased by around 80 kWh/h (~50%).

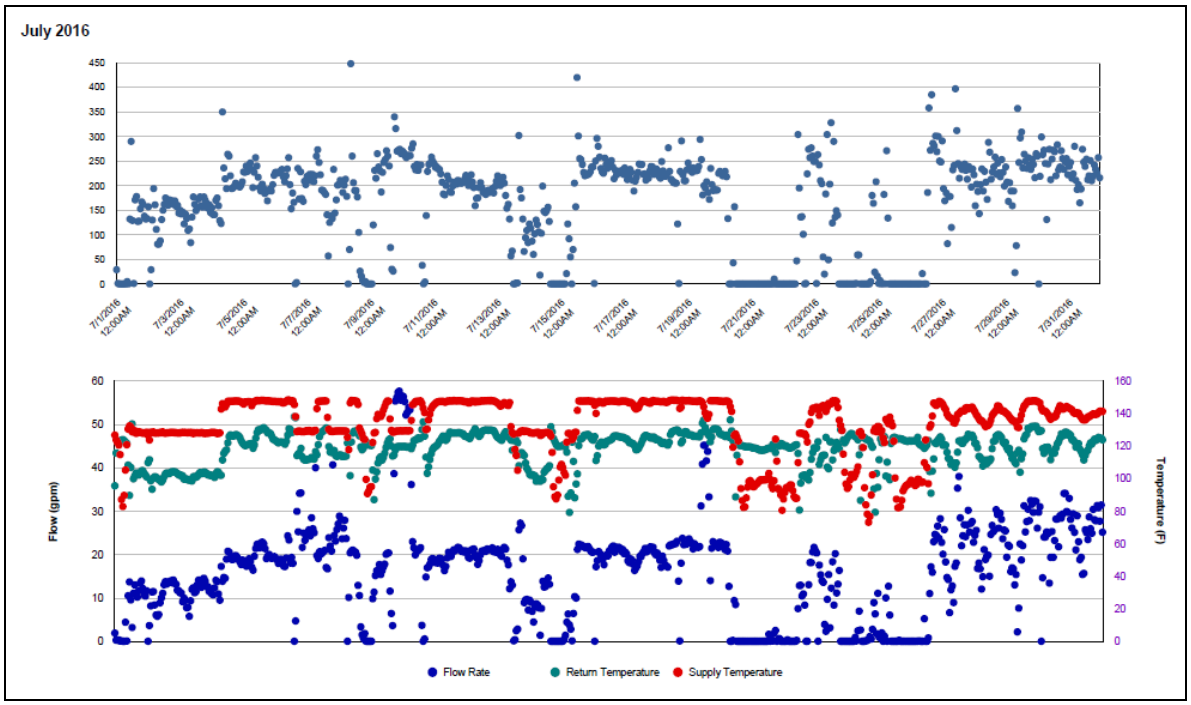
It was observed that the cumulative reading for these two meters switched on 8/14/2015 12:00 AM. It is suggested to investigate these two meters.

The HHW consumption dropped to zero or nearly zero during 6/1/2016 – 7/2/2016, 7/6/2016, 7/8/2016 – 7/10/2016, 7/13/2016 – 7/15/2016, 7/20/2016 – 7/26/2016, 7/30/2016 caused by zero readings of flow rate. The consumption is estimated by a model.

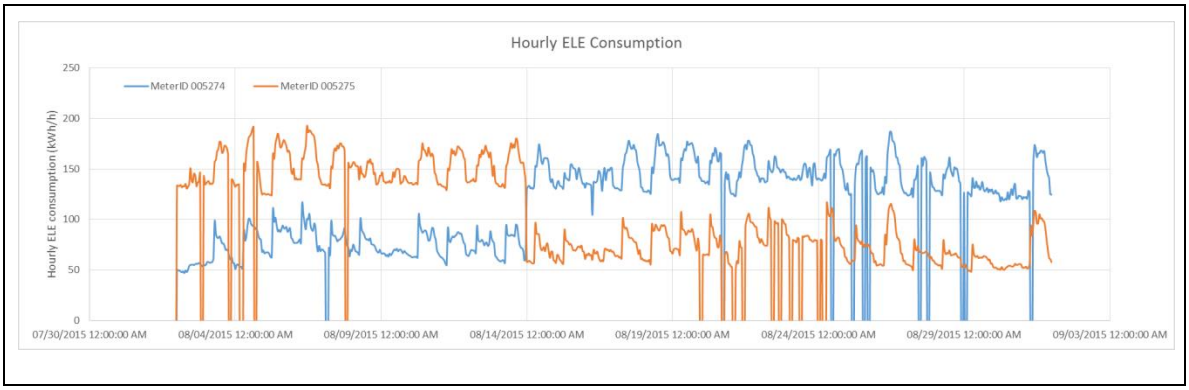
Explanatory Figure: 13 months energy balance plot with original data



Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW meter during July 2016)



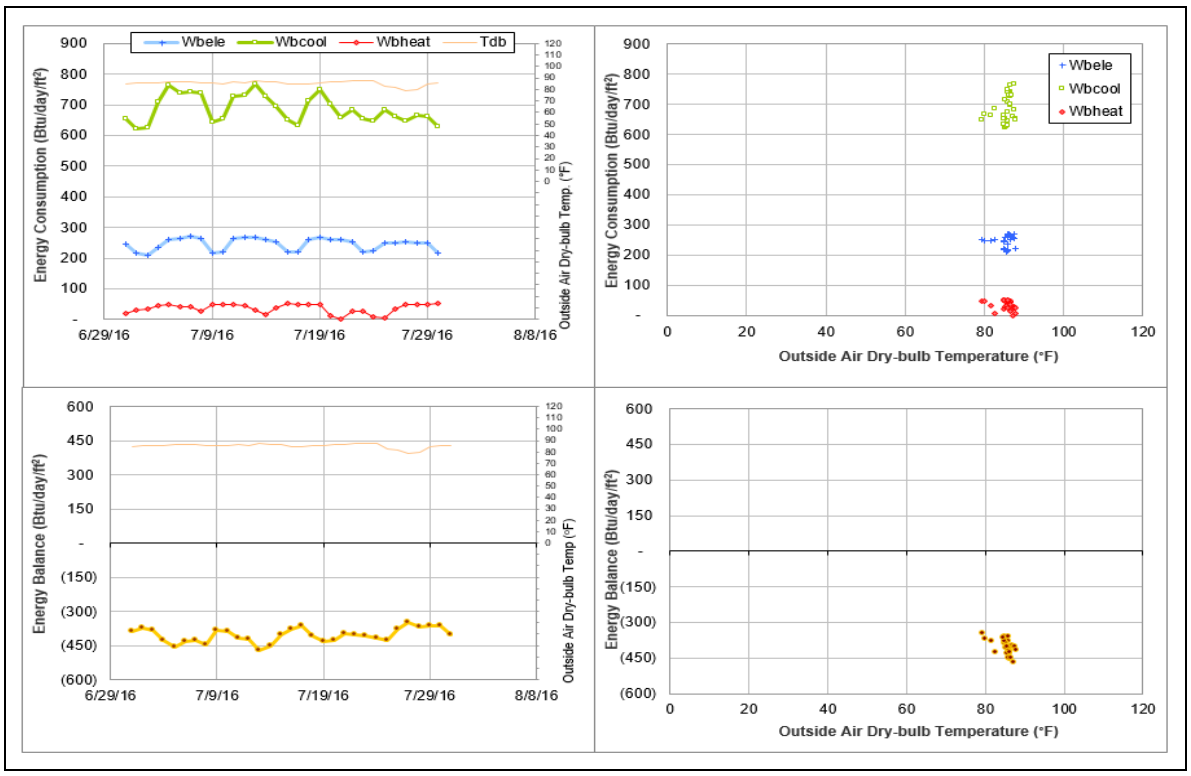
Explanatory Figure: The time series plot of hourly electricity consumption for two ELE meters #005274 and# 005275



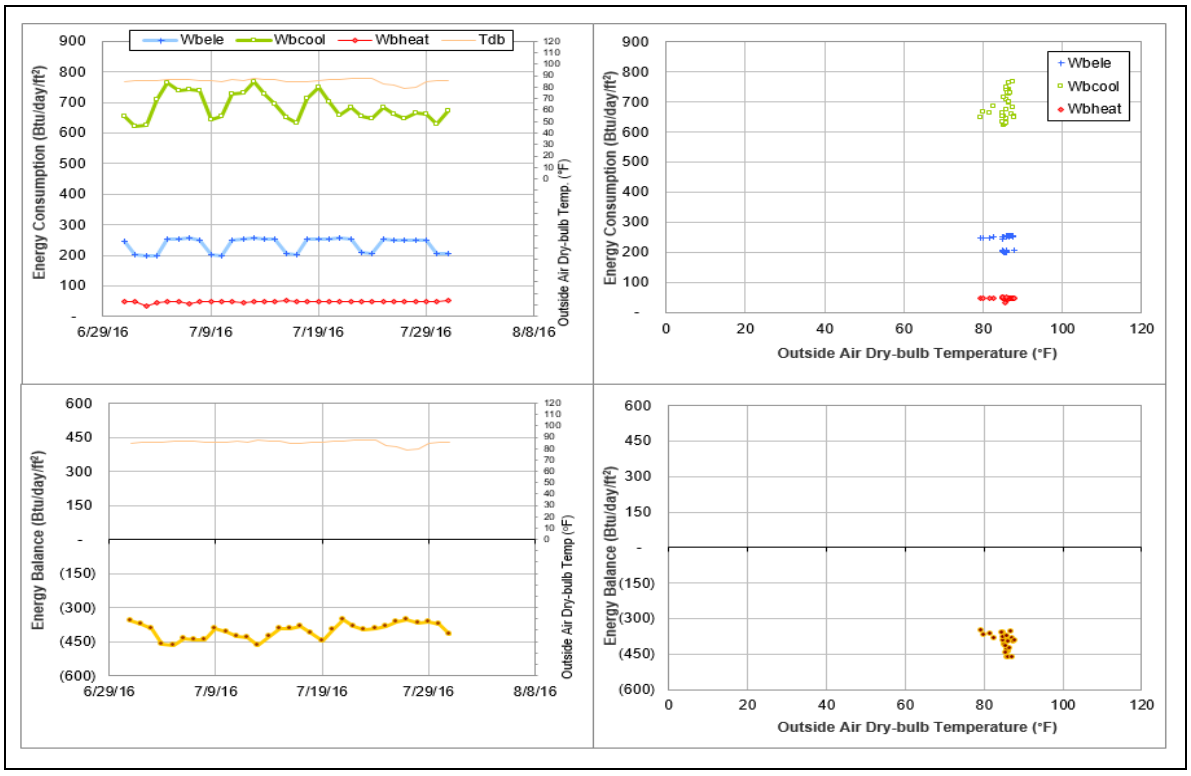
Explanatory Figure: The time series plot of hourly electricity consumption for two ELE meters #005274 and# 005275

Time	Cumulative reading	Hourly Consumption	MeterID		Time	Cumulative reading	Hourly Consumption	MeterID
08/13/2015 12:00:00 PM	2930884.013	84.262	005274		08/13/2015 12:00:00 PM	4741958.002	170.658	005275
08/13/2015 01:00:00 PM	2930968.589	84.576	005274		08/13/2015 01:00:00 PM	4742132.336	174.334	005275
08/13/2015 02:00:00 PM	2931051.959	83.37	005274		08/13/2015 02:00:00 PM	4742303.554	171.218	005275
08/13/2015 03:00:00 PM	2931146.799	94.84	005274		08/13/2015 03:00:00 PM	4742483.683	180.129	005275
08/13/2015 04:00:00 PM	2931240.505	93.706	005274		08/13/2015 04:00:00 PM	4742662.753	179.07	005275
08/13/2015 05:00:00 PM	2931324.169	83.664	005274		08/13/2015 05:00:00 PM	4742832.009	169.256	005275
08/13/2015 06:00:00 PM	2931399.91	75.741	005274		08/13/2015 06:00:00 PM	4742993.53	161.521	005275
08/13/2015 07:00:00 PM	2931472.181	72.271	005274		08/13/2015 07:00:00 PM	4743149.675	156.145	005275
08/13/2015 08:00:00 PM	2931543.838	71.657	005274		08/13/2015 08:00:00 PM	4743305.9	156.225	005275
08/13/2015 09:00:00 PM	2931613.306	69.468	005274		08/13/2015 09:00:00 PM	4743462.097	156.197	005275
08/13/2015 10:00:00 PM	2931672.706	59.4	005274		08/13/2015 10:00:00 PM	4743610.221	148.124	005275
08/13/2015 11:00:00 PM	2931733.072	60.366	005274		08/13/2015 11:00:00 PM	4743745.645	135.424	005275
08/14/2015 12:00:00 AM	4743876.03	130.385	005274		08/14/2015 12:00:00 AM	2931791.19	58.118	005275
08/14/2015 01:00:00 AM	4744008.406	132.376	005274		08/14/2015 01:00:00 AM	2931849.35	58.16	005275
08/14/2015 02:00:00 AM	4744141.74	133.334	005274		08/14/2015 02:00:00 AM	2931908.534	59.184	005275
08/14/2015 03:00:00 AM	4744272.553	130.813	005274		08/14/2015 03:00:00 AM	2931966.686	58.152	005275
08/14/2015 04:00:00 AM	4744404.045	131.492	005274		08/14/2015 04:00:00 AM	2932023.589	56.903	005275
08/14/2015 05:00:00 AM	4744534.38	130.335	005274		08/14/2015 05:00:00 AM	2932080.05	56.461	005275
08/14/2015 06:00:00 AM	4744667.111	132.731	005274		08/14/2015 06:00:00 AM	2932137.05	57	005275
08/14/2015 07:00:00 AM	4744820.038	152.927	005274		08/14/2015 07:00:00 AM	2932232.983	95.933	005275
08/14/2015 08:00:00 AM	4744972.221	152.183	005274		08/14/2015 08:00:00 AM	2932319.162	86.179	005275
08/14/2015 09:00:00 AM	4745134.467	162.246	005274		08/14/2015 09:00:00 AM	2932404.691	85.529	005275
08/14/2015 10:00:00 AM	4745308.905	174.438	005274		08/14/2015 10:00:00 AM	2932489.976	85.285	005275
08/14/2015 11:00:00 AM	4745476.832	167.927	005274		08/14/2015 11:00:00 AM	2932564.419	74.443	005275
08/14/2015 12:00:00 PM	4745634.44	157.608	005274		08/14/2015 12:00:00 PM	2932634.064	69.645	005275
08/14/2015 01:00:00 PM	4745789.345	154.905	005274		08/14/2015 01:00:00 PM	2932704.723	70.659	005275
08/14/2015 02:00:00 PM	4745949.369	160.024	005274		08/14/2015 02:00:00 PM	2932777.373	72.65	005275
08/14/2015 03:00:00 PM	4746110.346	160.977	005274		08/14/2015 03:00:00 PM	2932845.908	68.535	005275
08/14/2015 04:00:00 PM	4746270.903	160.557	005274		08/14/2015 04:00:00 PM	2932920.525	74.617	005275
08/14/2015 05:00:00 PM	4746431.347	160.444	005274		08/14/2015 05:00:00 PM	2932996.835	76.31	005275
08/14/2015 06:00:00 PM	4746586.415	155.068	005274		08/14/2015 06:00:00 PM	2933065.518	68.683	005275
08/14/2015 07:00:00 PM	4746727.476	141.061	005274		08/14/2015 07:00:00 PM	2933127.559	62.041	005275
08/14/2015 08:00:00 PM	4746864.372	136.896	005274		08/14/2015 08:00:00 PM	2933195.384	67.825	005275
08/14/2015 09:00:00 PM	4747004.372	140	005274		08/14/2015 09:00:00 PM	2933263.632	68.248	005275
08/14/2015 10:00:00 PM	4747137.886	133.514	005274		08/14/2015 10:00:00 PM	2933323.26	59.628	005275
08/14/2015 11:00:00 PM	4747269.569	131.683	005274		08/14/2015 11:00:00 PM	2933382.3	59.04	005275

Energy balance plot using the original data for the month of analysis.



Energy balance plot using the estimated data for the month of analysis



Reed Arena (TAMU Bldg #1554)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
ELE	006243	31	7/1/2016 – 7/31/2016	Model

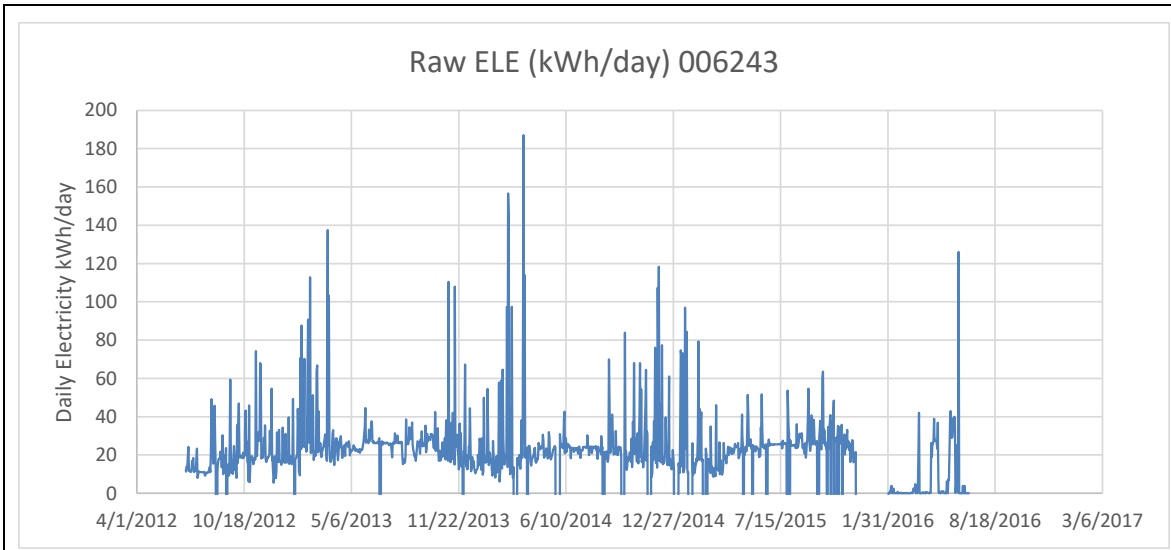
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	The consumption decreased largely.	2/1/2016-3/28/2016 3/30/2016-4/19/2016 5/4/2016-5/24/2016 6/5/2016-7/31/2016

Quantitative descriptions and comments

There are three ELE meters for this building. The consumption for one of them (ELE MID 006243) only counts for around 0.3% of total ELE consumption for this building. The consumption for ELE MID 006243 decreased to nearly zero since 2/1/2016. It increased back on 3/28/2016, but decreased to nearly zero during 3/30/2016 – 4/19/2016, 5/4/2016-5/24/2016, and 6/5/2016-7/31/2016. However, it doesn't affect the energy balance. The problematic consumption was estimated by a model based on the data during 1/1/2015 – 12/31/2015.

Explanatory Figure: Time series plot for ELE meter 006243



Reed Arena and Cox-McFerrin Center (TAMU Bldg #1554 – 1558)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	007576	8	7/24/2016 – 7/31/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption increased.	7/24/2016 – ongoing

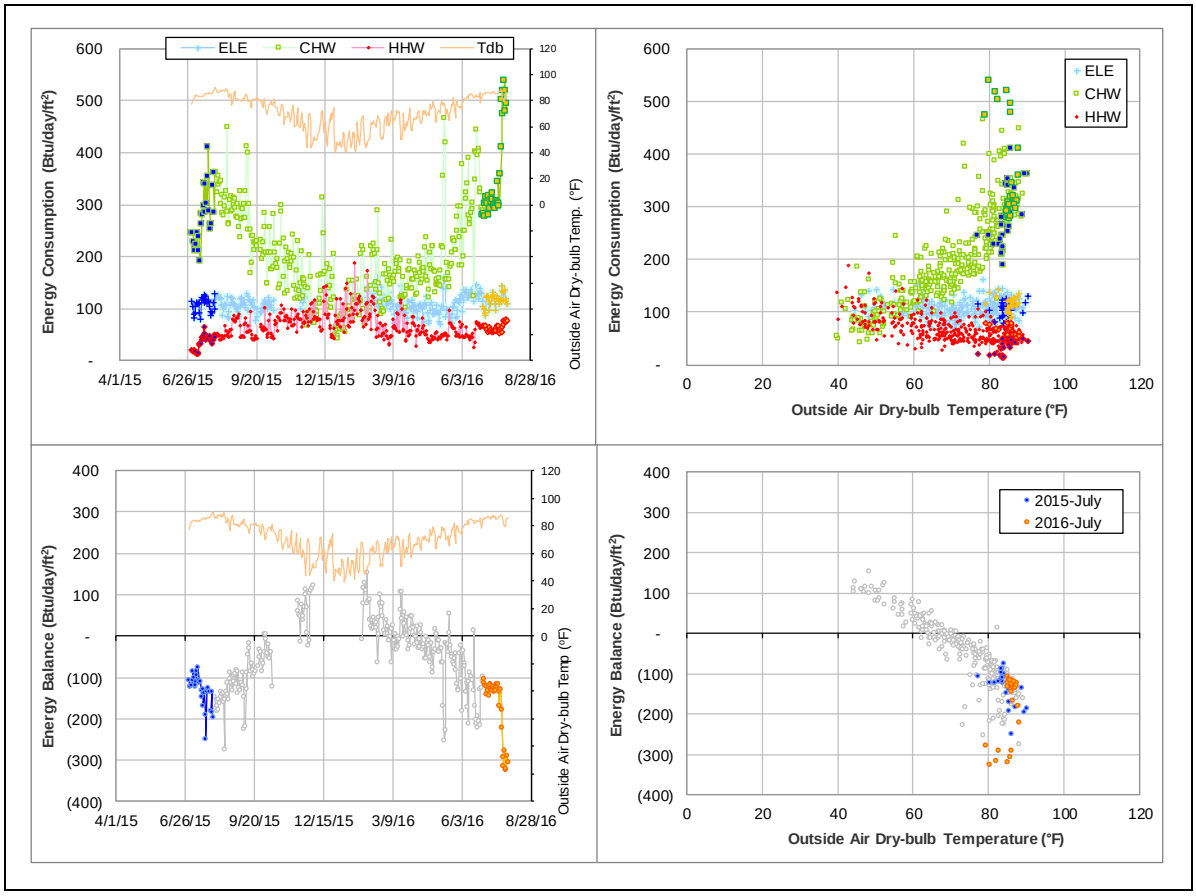
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	007576	7/24/2016 – 7/31/2016	Flow rate	Increased

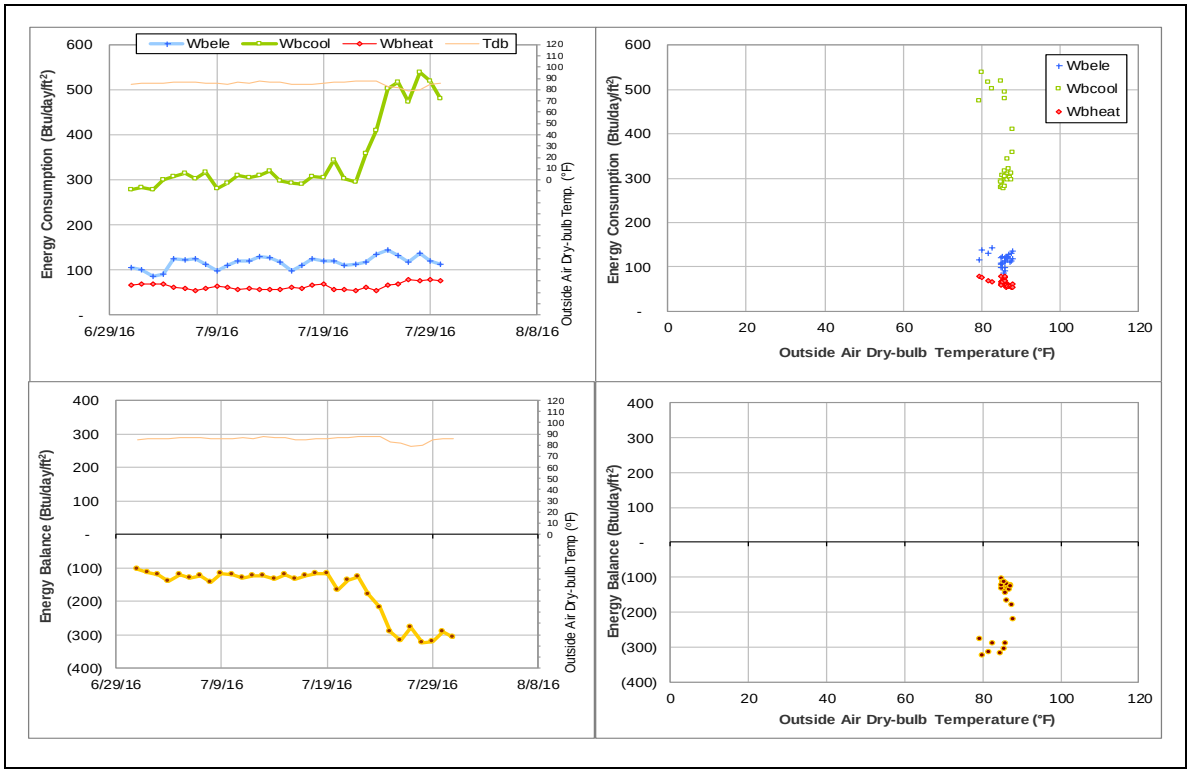
Quantitative descriptions and comments

The flow rate increased on 7/24 from 1000 to 1300 pulling the hourly consumption from 4000 up to 7000. The consumption is estimated by a model.

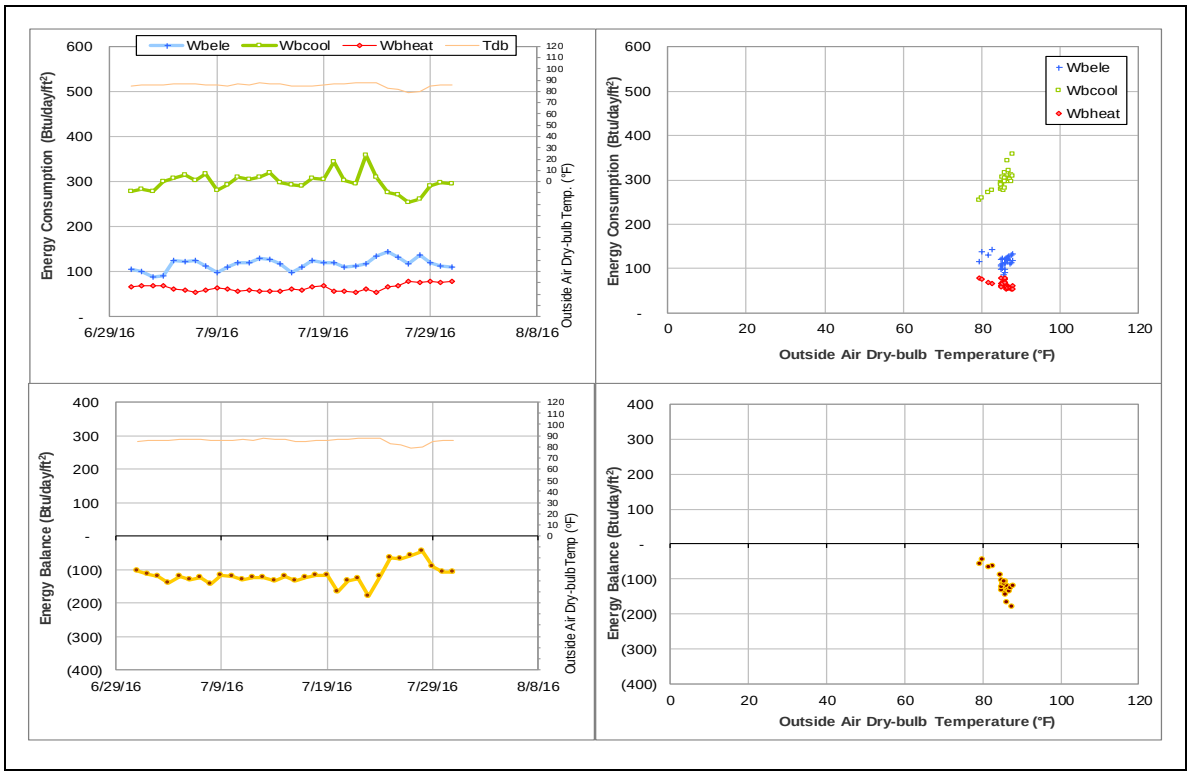
Explanatory Figure: 13 months energy balance plot with original data



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Cox-McFerrin Center for Aggie Basketball (TAMU Bldg #1558)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	007575	31	7/1/2016 – 7/31/2016	Model

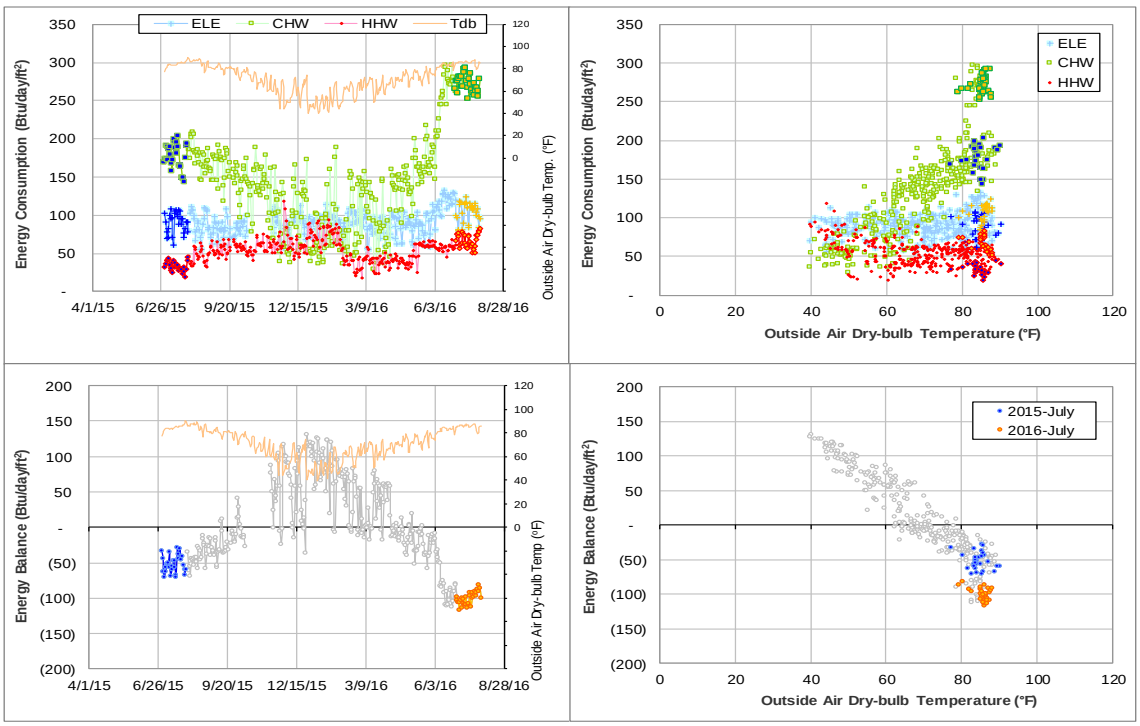
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption increased.	6/10/2016 – ongoing

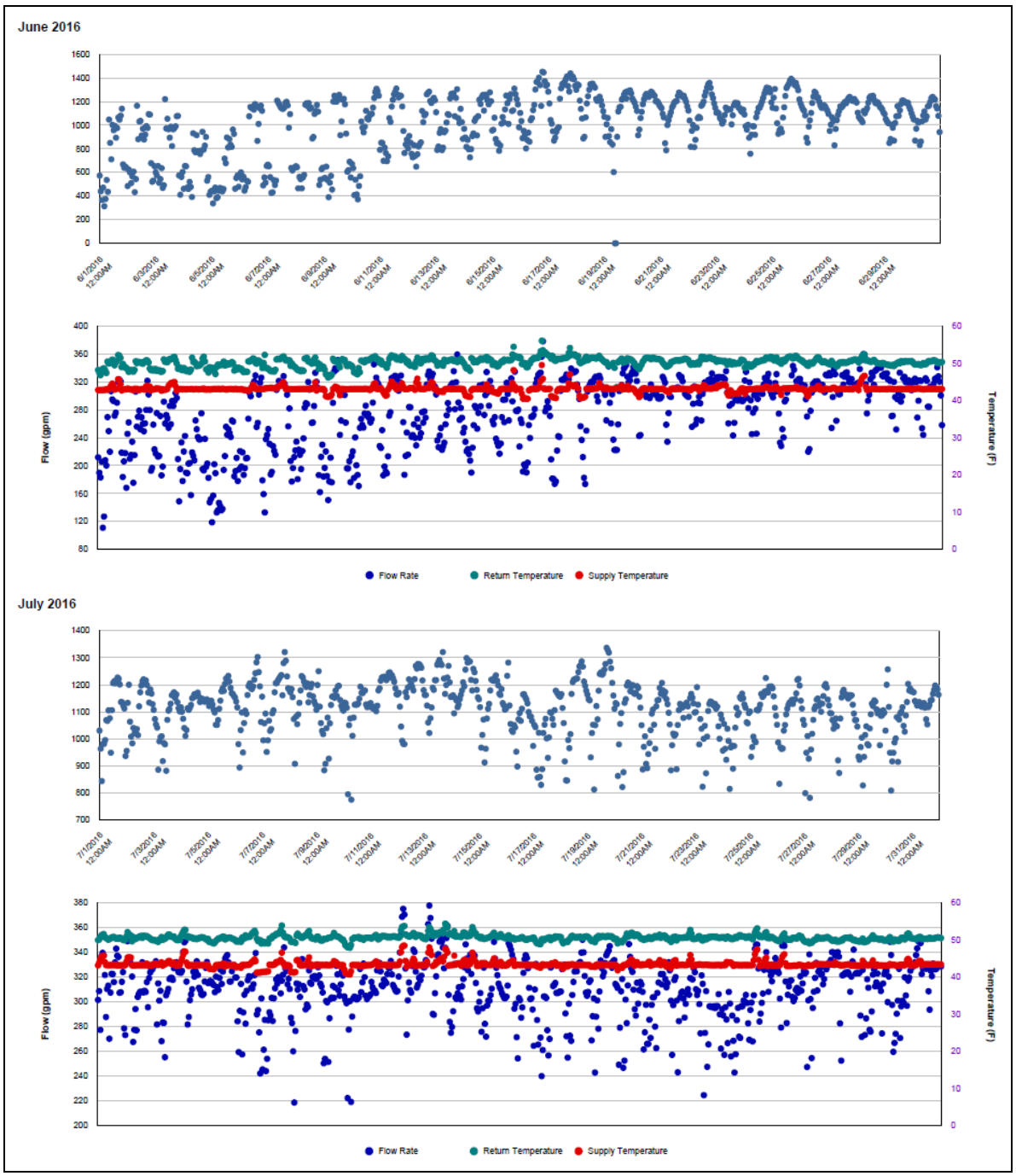
Quantitative descriptions and comments

Starting 6/10/2016 the CHW consumption of this building no longer has diurnal difference resulting in an increase from 200 Btu/day/ft^2 to 300 Btu/day/ft^2. The consumption was estimated by a model.

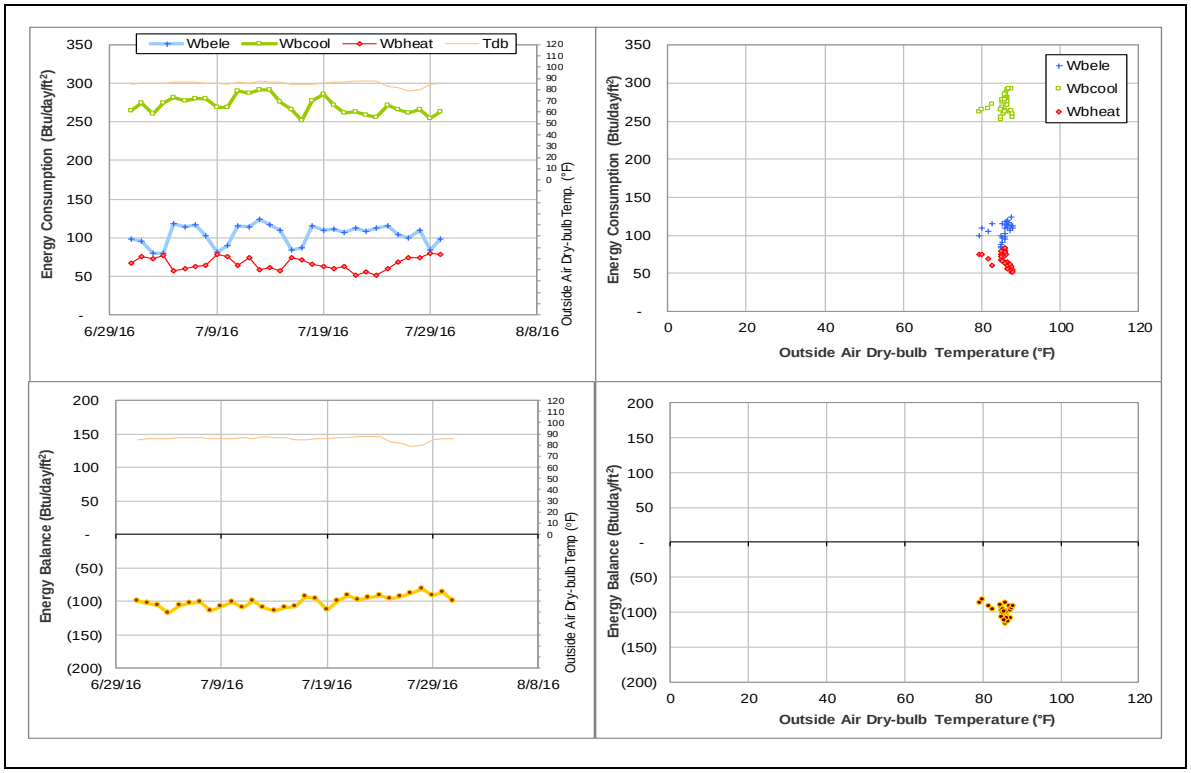
Explanatory Figure: 13 months energy balance plot with original data



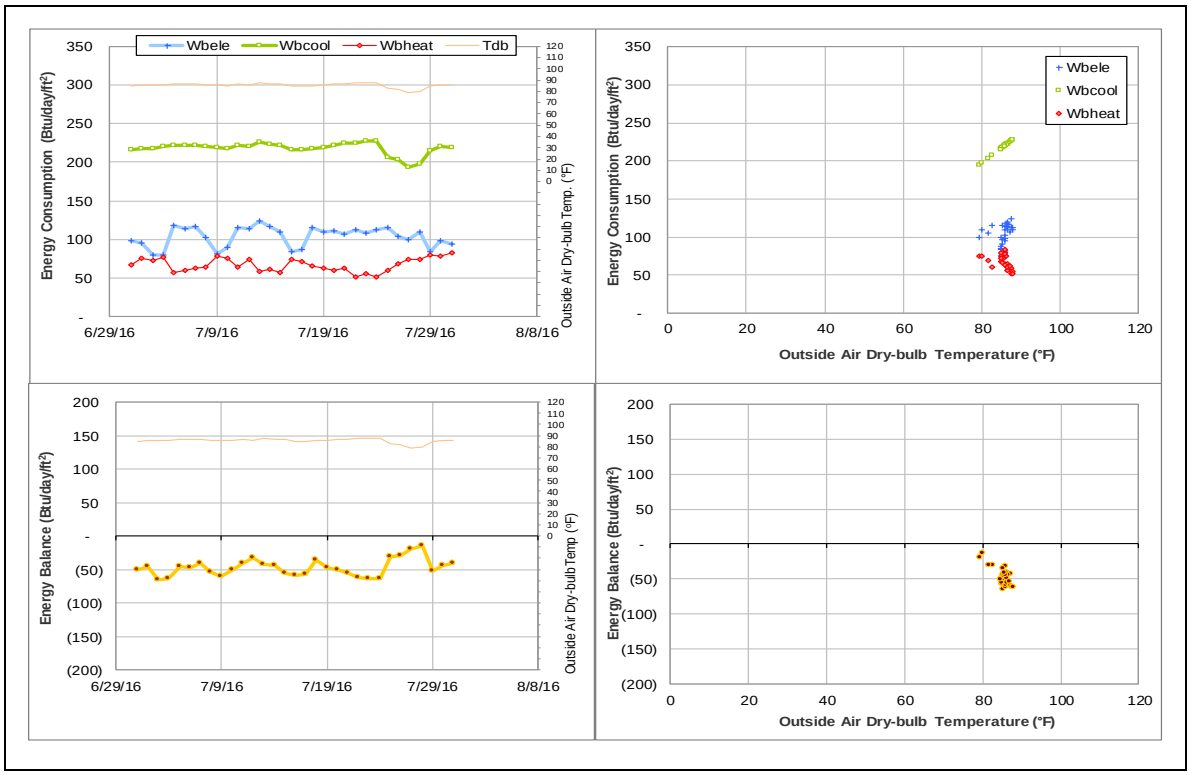
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW meter during June and July 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Office of the State Chemist Building (TAMU Bldg #1810)

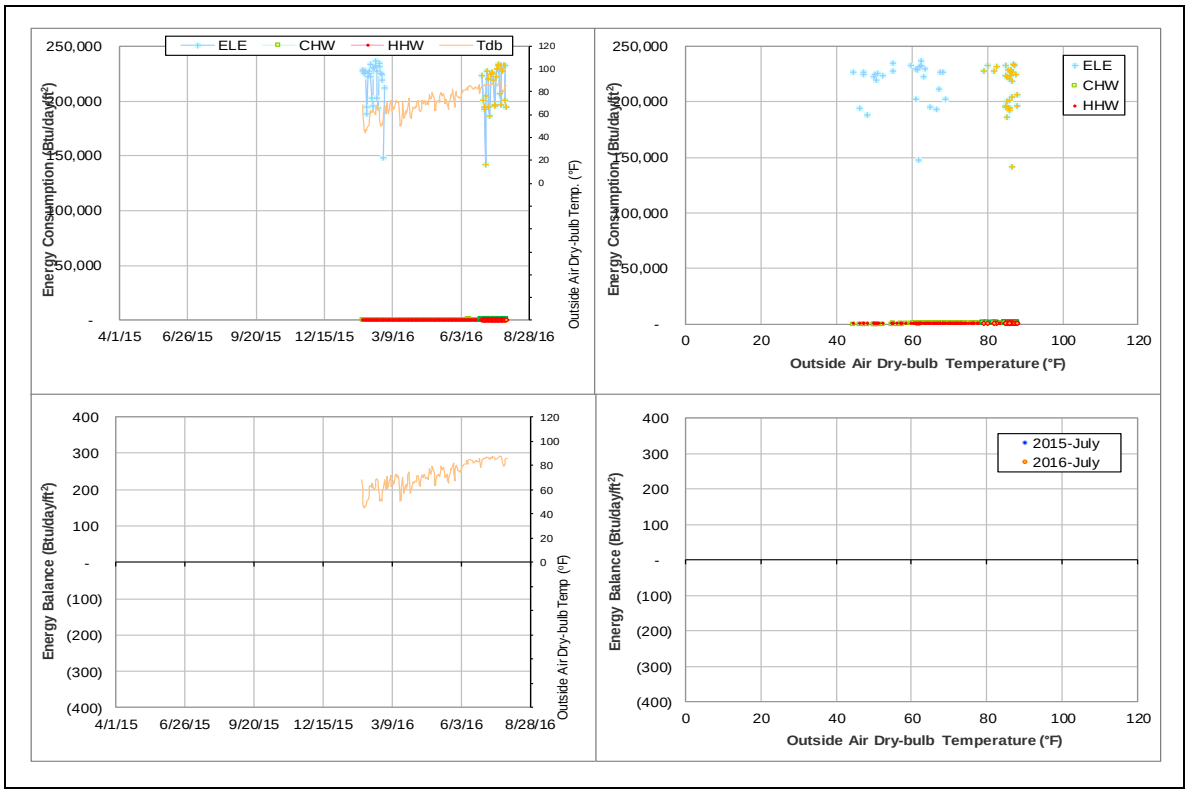
Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
ELE	009073	31	7/1/2016 – 7/31/2016	Factor

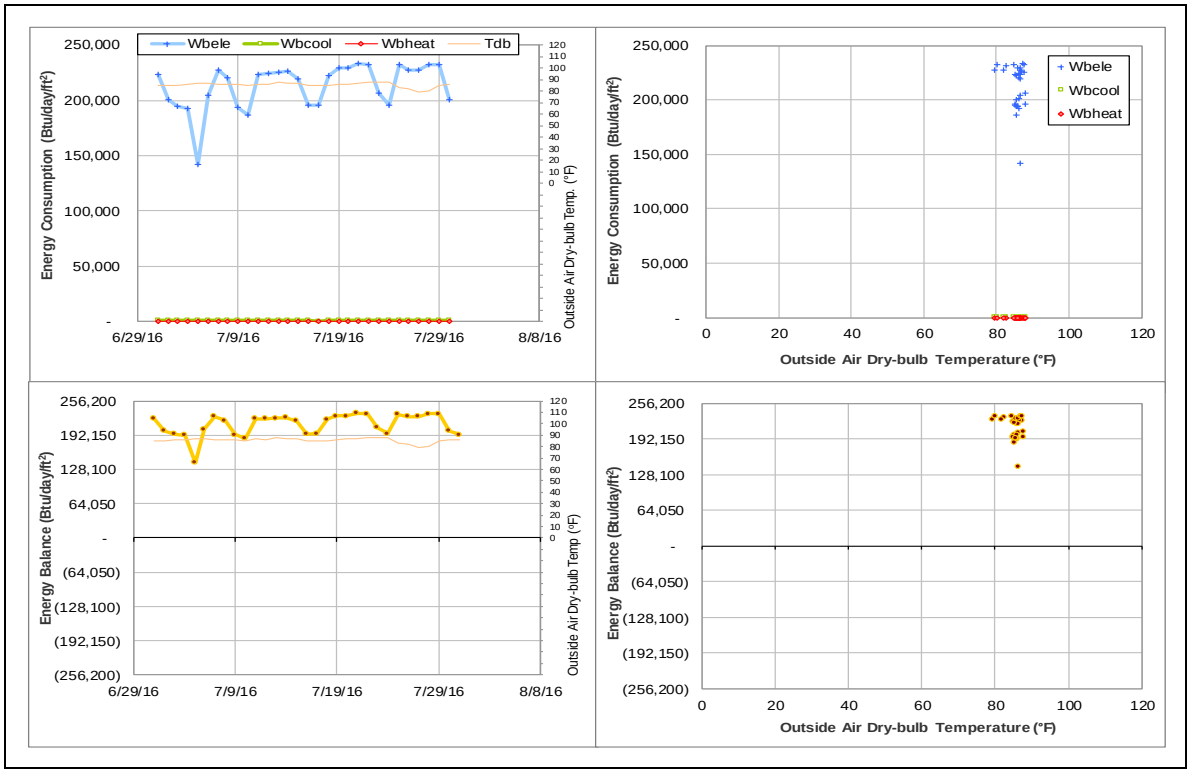
Quantitative descriptions and comments

The ELE MID 005438 was replaced with new MID 009073 this February. New MID 009073 covers the entire building plus expansion. The area before expansion is 21,735 ft2. The official square footage for expansion part is not available now, but we were told it should be close to 10,000 ft^2. However, the daily consumption for new MIDS is around 1000 times greater than that for old MID. Usually the unit for ELE data received from UES is kilowatt (kW). For this one, the unit seems to be watt. It is suggested to investigate this meter.

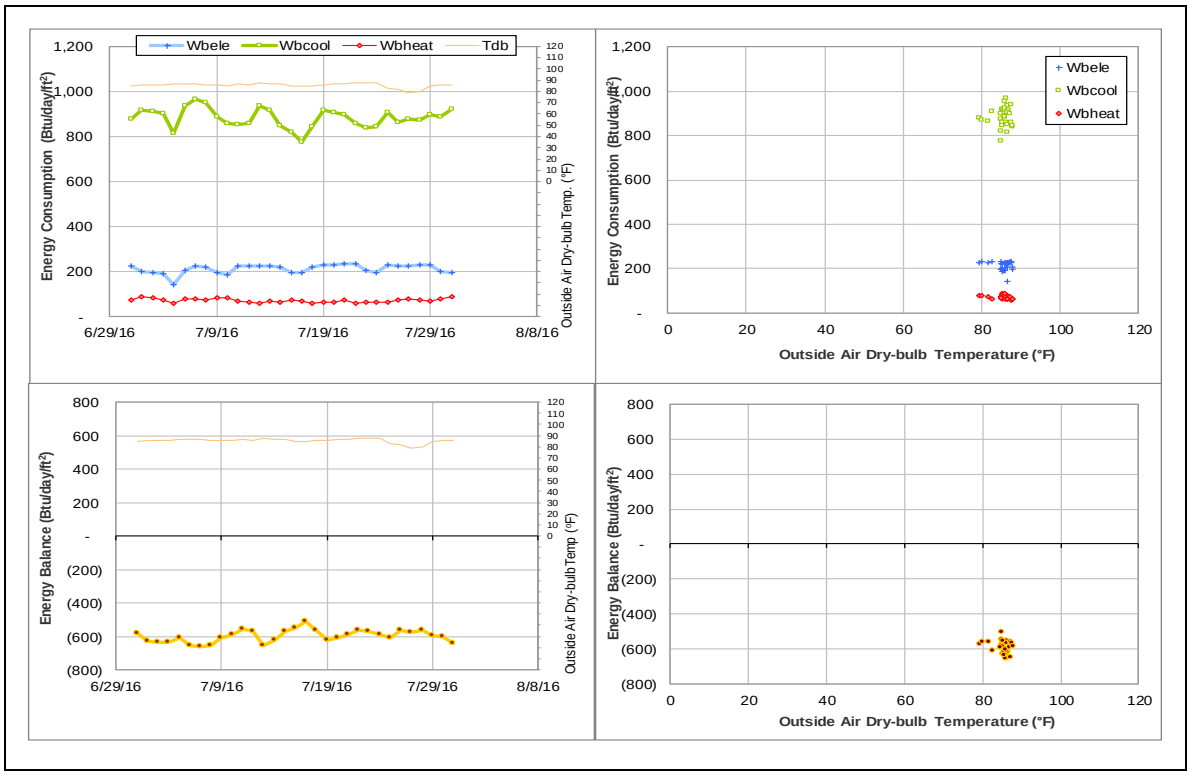
Explanatory Figure: 13 months energy balance plot with original data



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Texas Institute for Genomic Medicine (TAMU Bldg #1900)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	005546	14	7/5/2016, 7/10/2016 - 7/11/2016, 7/14/2016, 7/17/2016 – 7/21/2016 7/26/2016 – 7/30/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption increased for some days.	7/5/2016, 7/10/2016 - 7/11/2016, 7/14/2016, 7/17/2016 – 7/21/2016 7/26/2016 – 7/30/2016

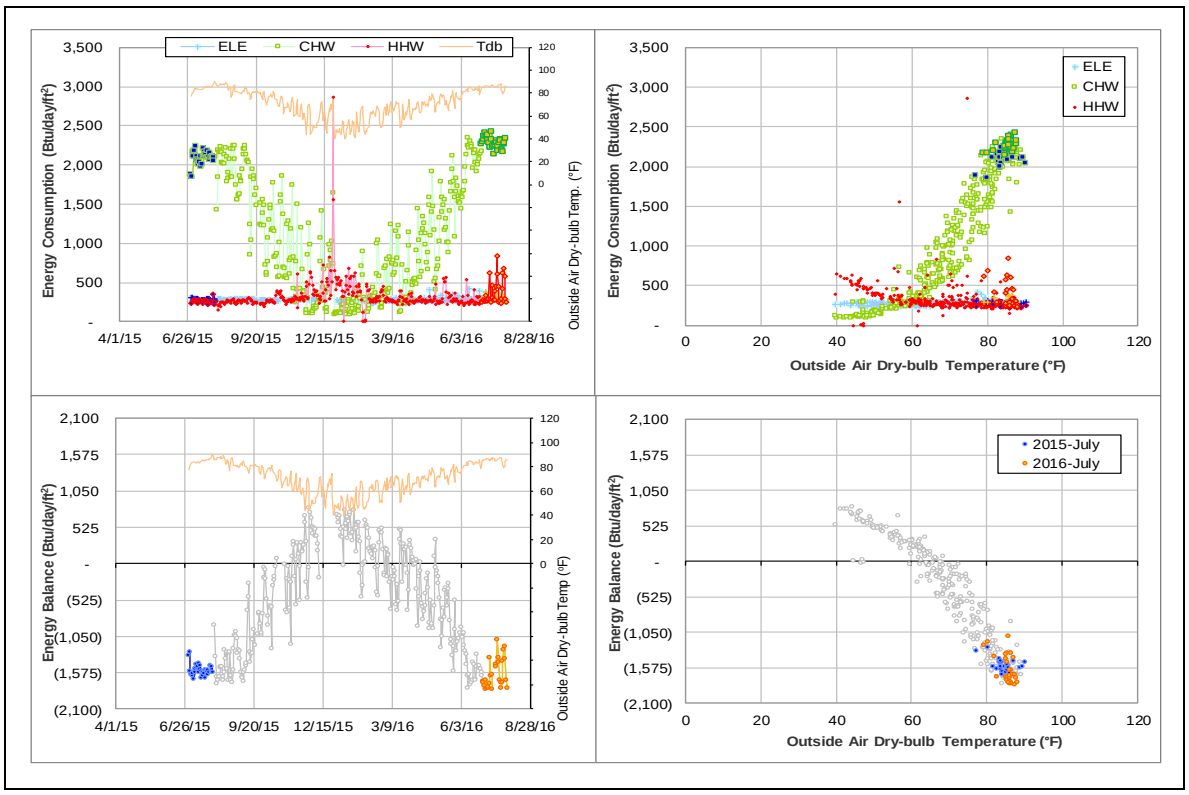
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	005546	7/5/2016, 7/10/2016 - 7/11/2016, 7/14/2016, 7/17/2016 – 7/21/2016 7/26/2016 – 7/30/2016	Return temperature	Decreased

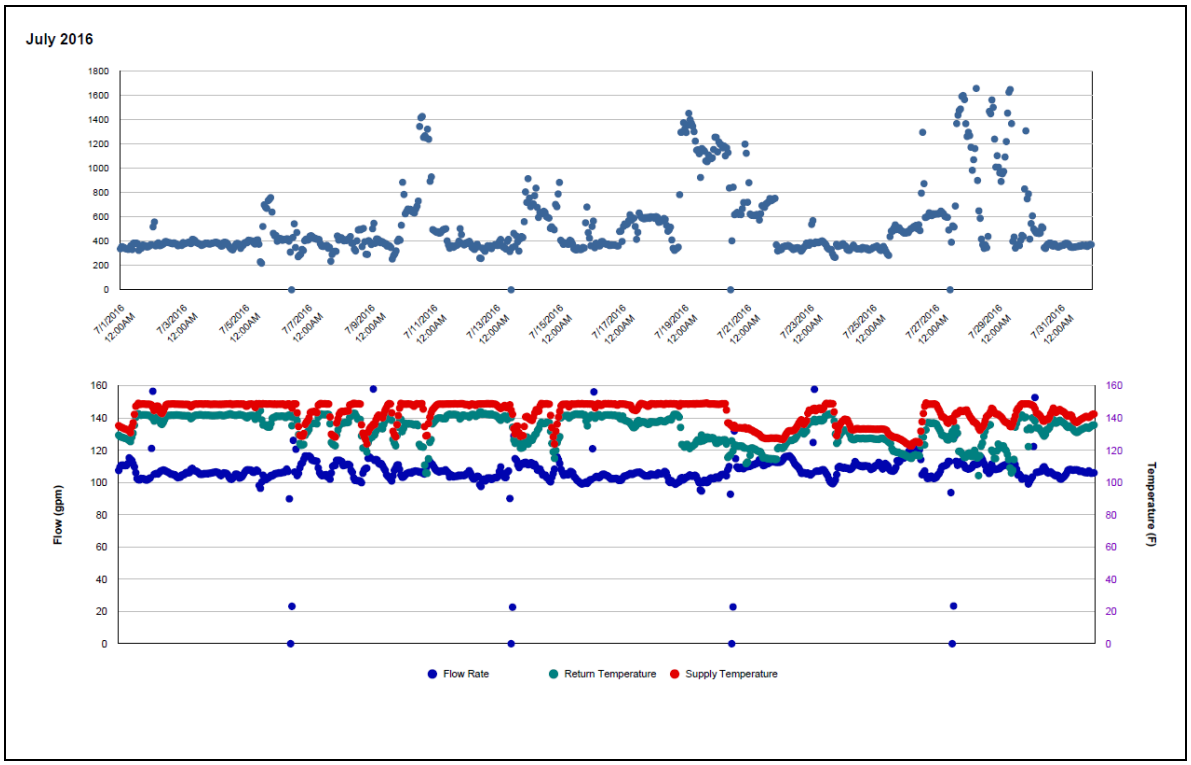
Quantitative descriptions and comments

The HHW consumption sudden increased for some days (7/5/2016, 7/10/2016 - 7/11/2016, 7/14/2016, 7/17/2016 – 7/21/2016, 7/26/2016 – 7/30/2016) due to a decrease of return temperature. The consumption for these days was estimated by a model.

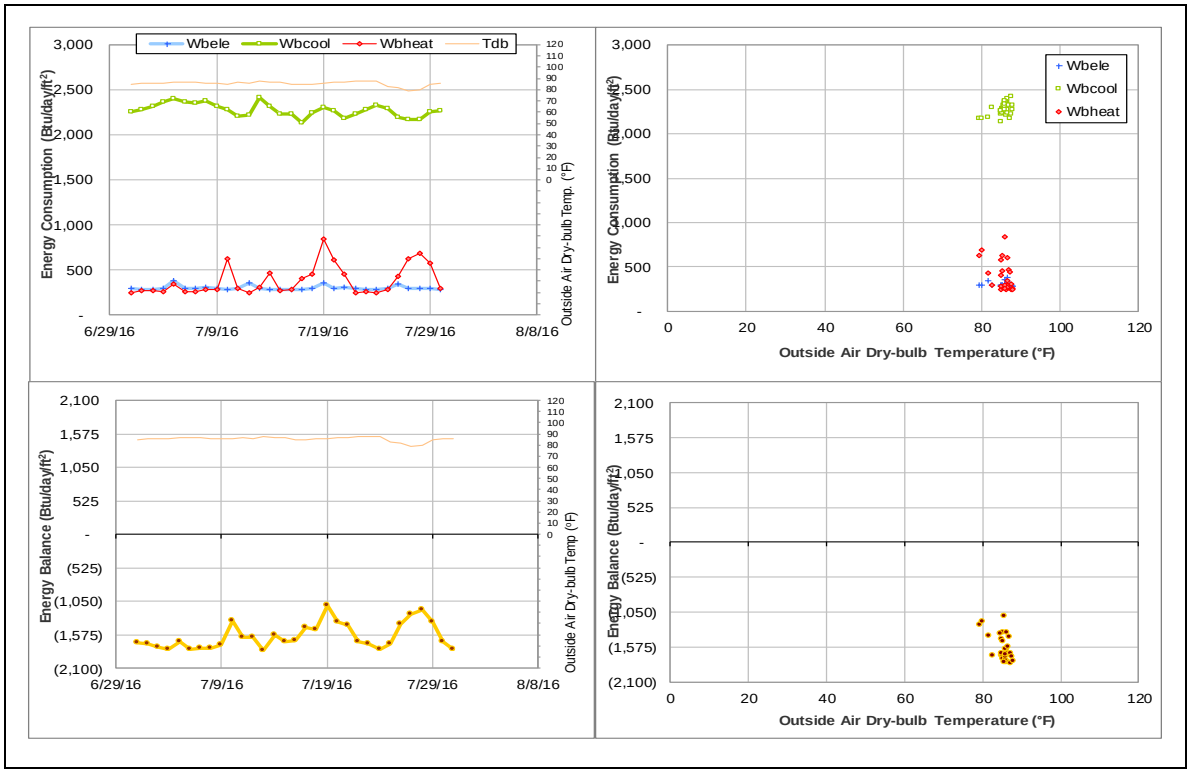
Explanatory Figure: 13 months energy balance plot with original data



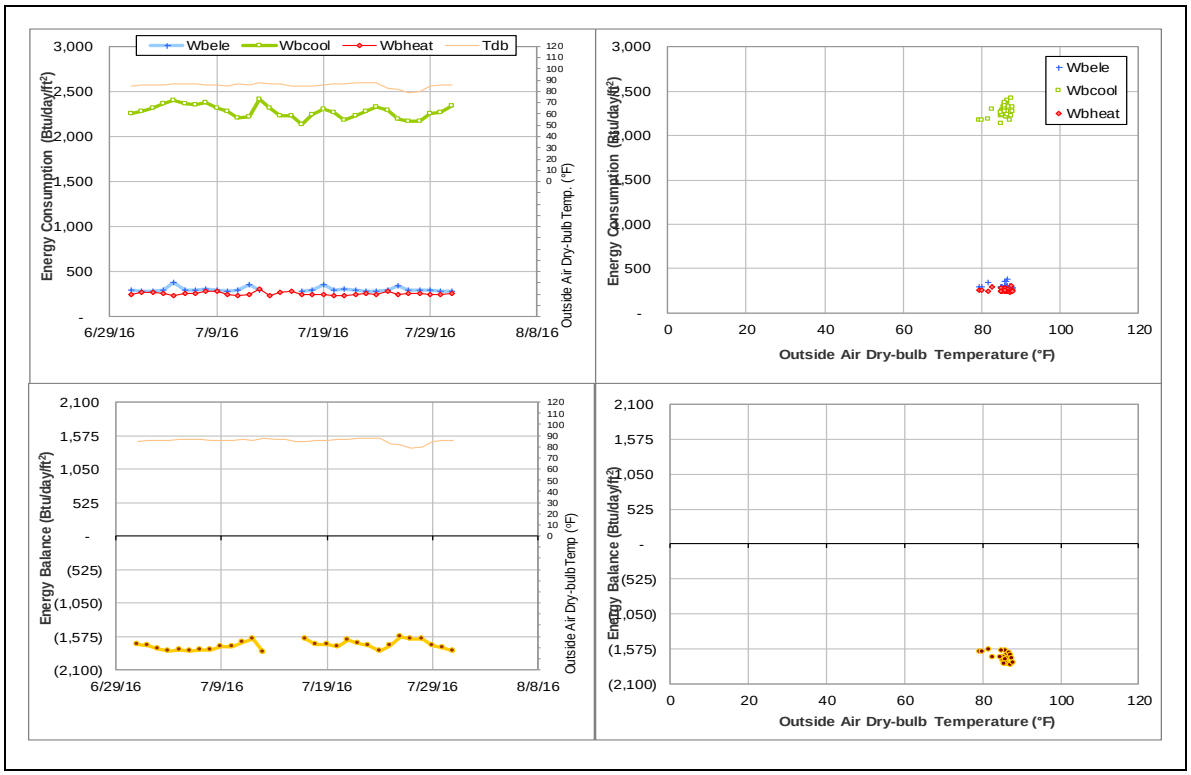
Explanatory Figure: Time series plots of hourly HHW energy consumption, flow rate, and supply and return temperatures from utilities office. (July 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



National Center for Therapeutics Manufacturing (TAMU Bldg #1910)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	007519	3	7/29/2016 – 7/31/2016	Line interpolation

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption decreased.	7/29/2016–ongoing

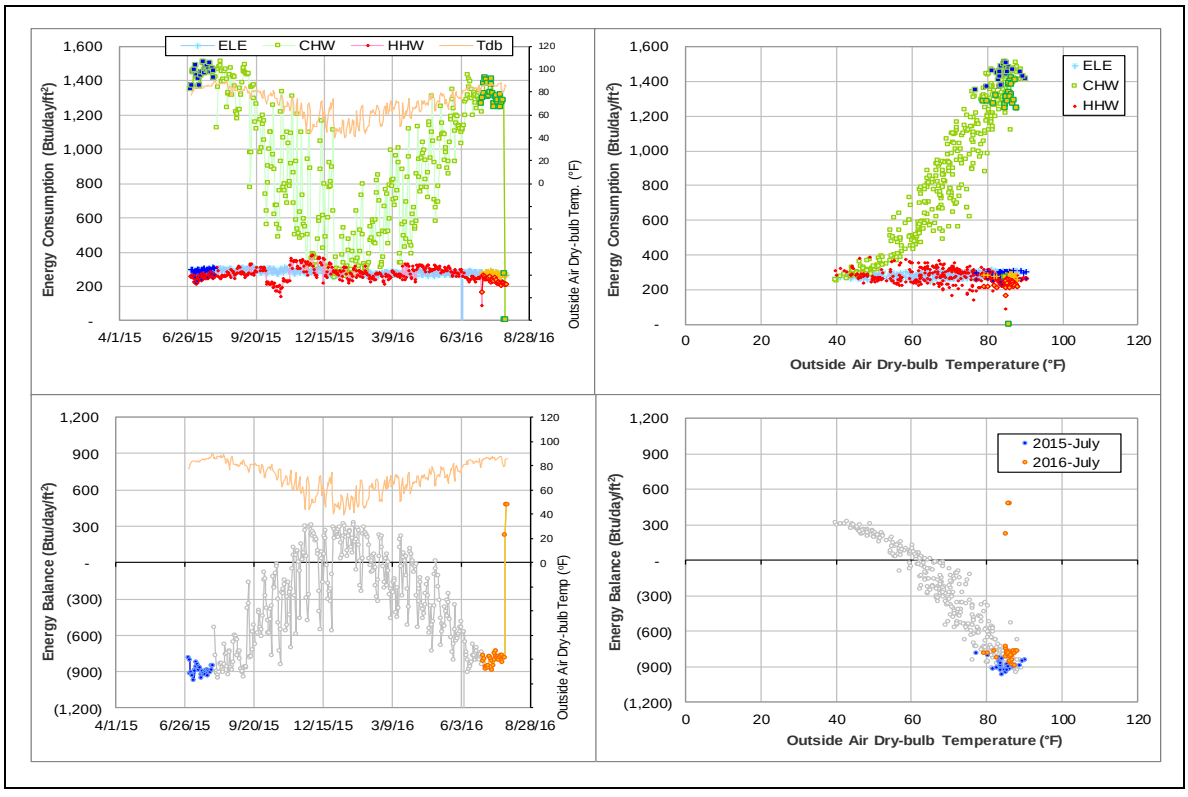
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	007519	7/29/2016–ongoing	Flow rate	Decreased to zero

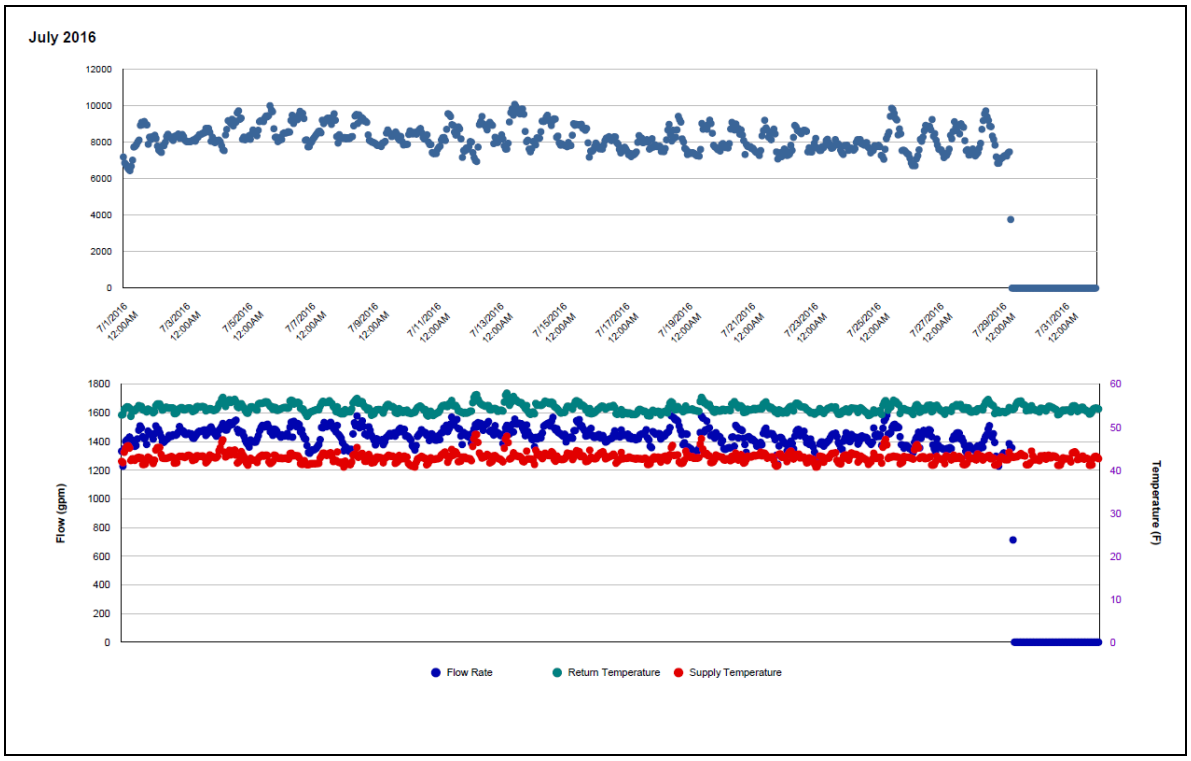
Quantitative descriptions and comments

The CHW consumption dropped to zero since 7/29/2016 due to a zero flow rate reading. The dropped consumption was estimated.

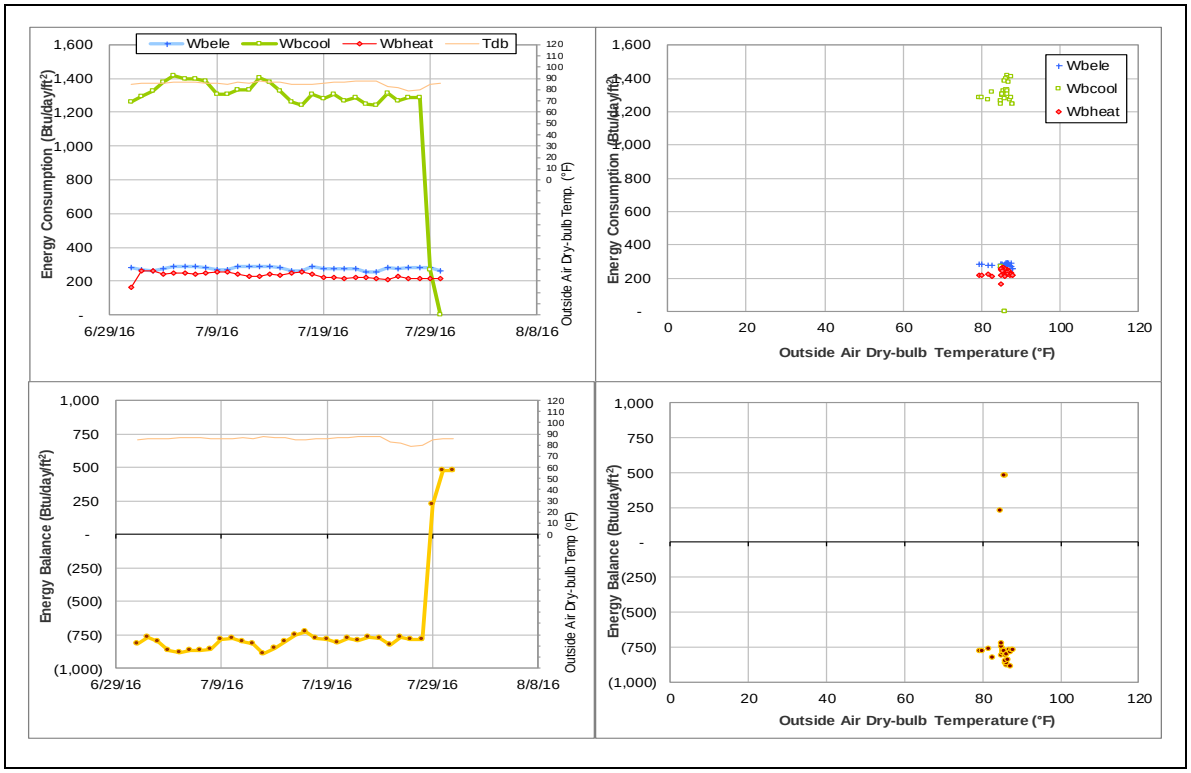
Explanatory Figure: 13 months energy balance plot with original data



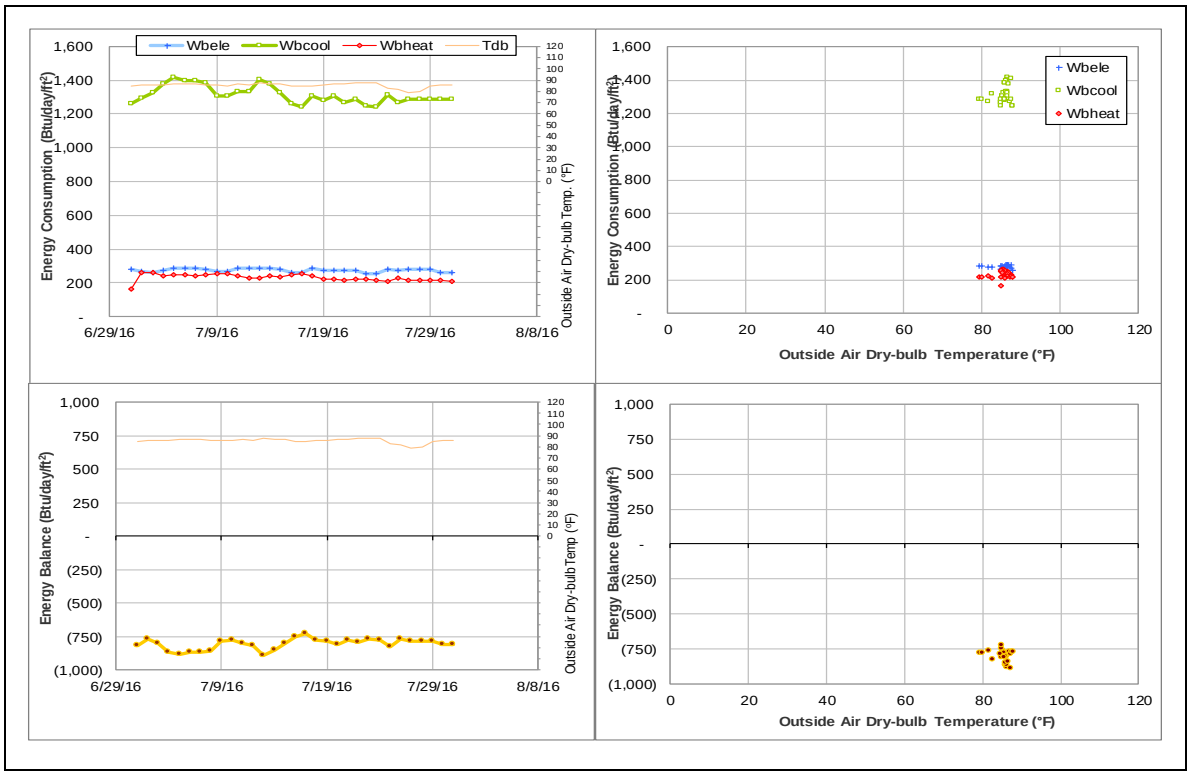
Explanatory Figure: Time series plots of hourly HHW energy consumption, flow rate, and supply and return temperatures from utilities office. (July 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Multi-Species Research Building (TAMU Bldg #1911)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	009133	6	7/1/2016 – 7/6/2016	Line interpolation

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption decreased to zero.	6/30/2016 – 7/6/2016

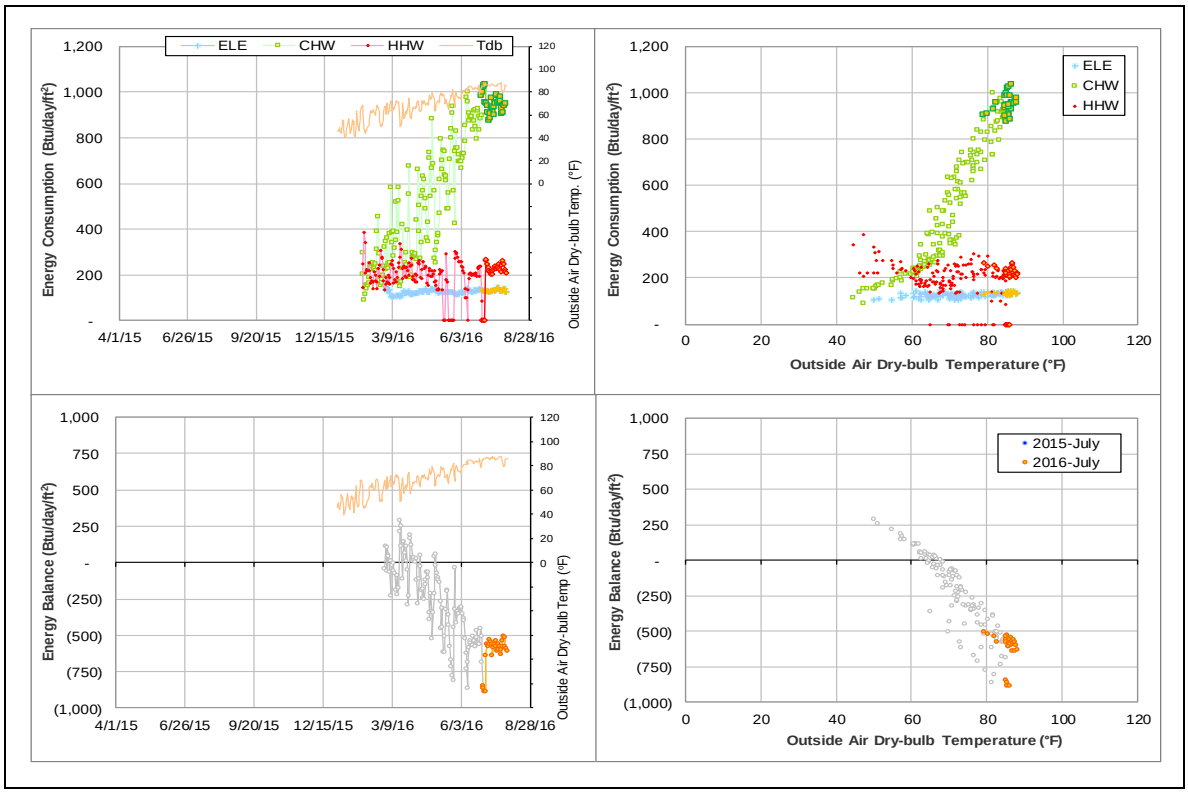
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	009133	6/30/2016 – 7/6/2016	Flow rate	Decreased to zero

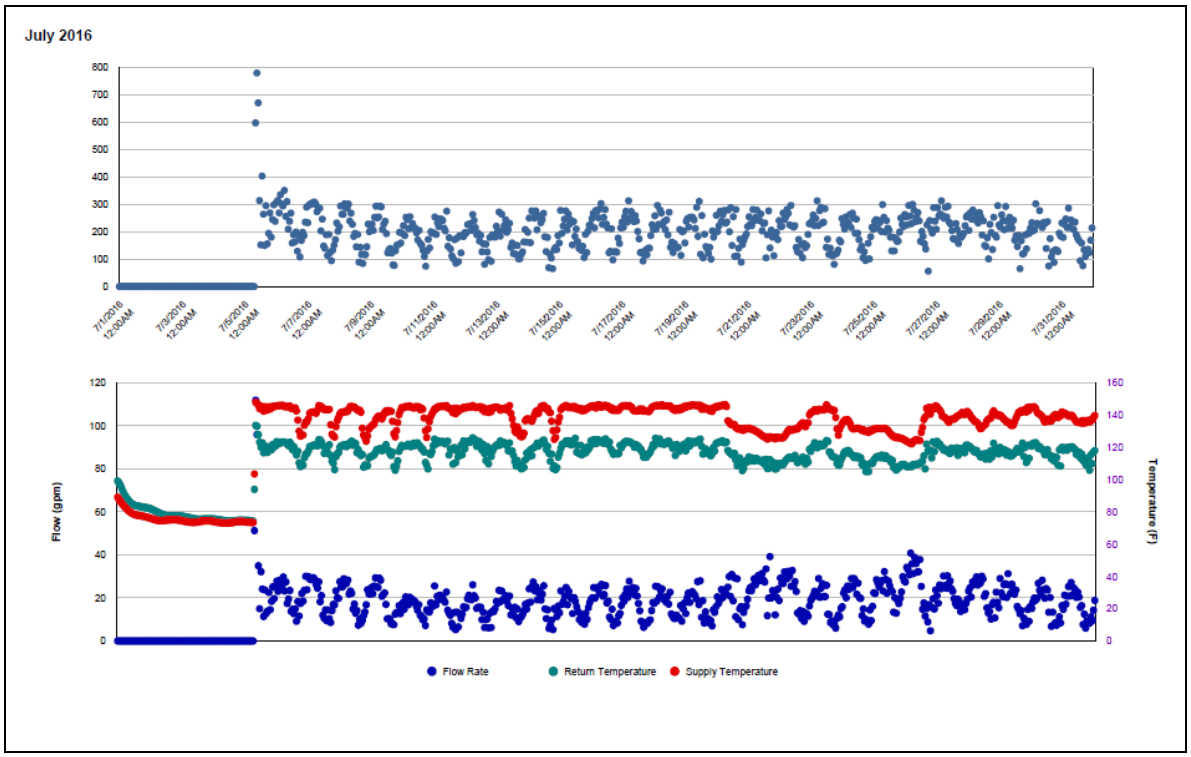
Quantitative descriptions and comments

The HHW consumption dropped to zero during 6/30/2016 – 7/6/2016 due to a zero flow rate reading. The dropped consumption was estimated.

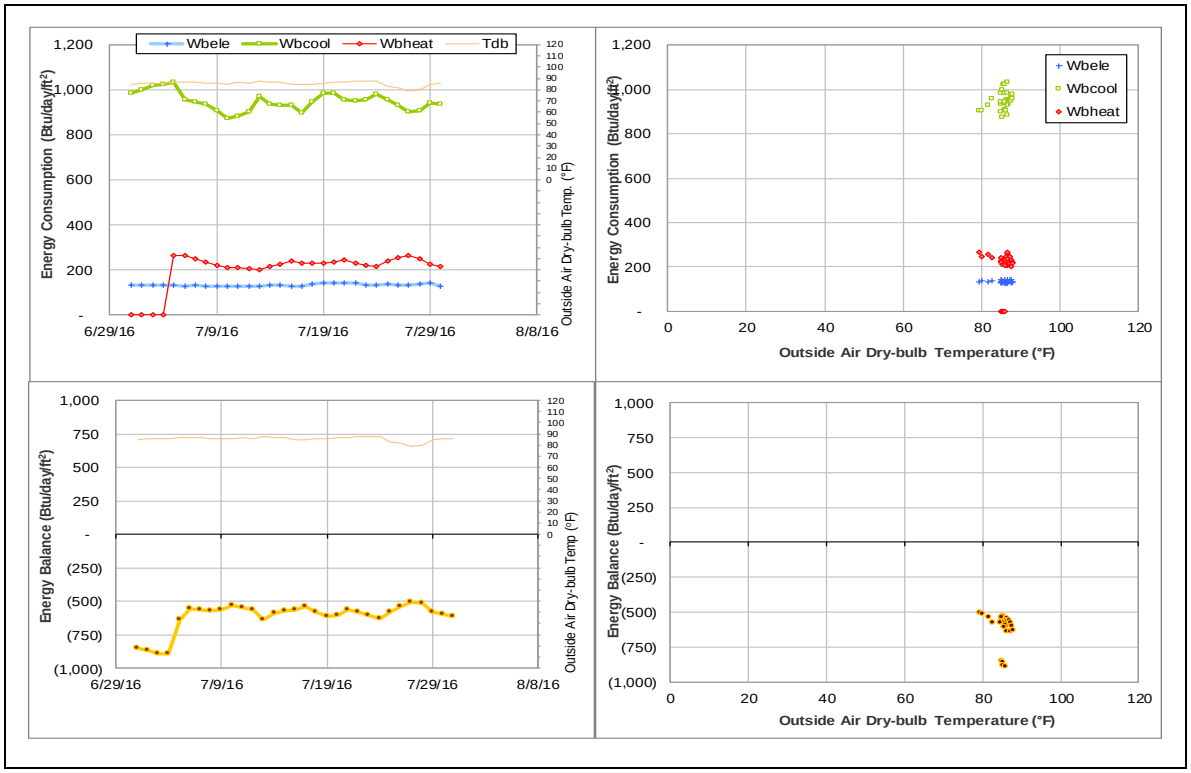
Explanatory Figure: 13 months energy balance plot with original data



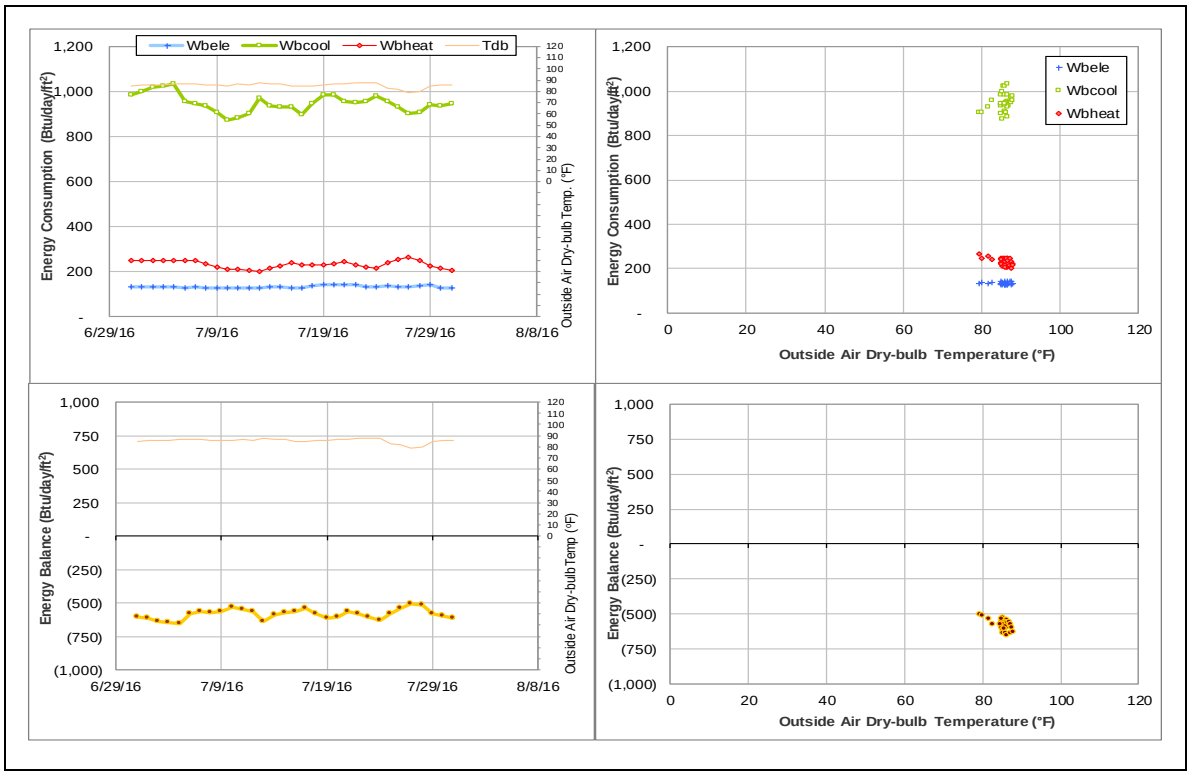
Explanatory Figure: Time series plots of hourly HHW energy consumption, flow rate, and supply and return temperatures from utilities office. (July 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



II-3 Meters with Significant Issues in Energy Consumption Data

In this section, significant issues in the data behavior are described. On the contrary to the section II–2, alternative consumption is not estimated for some reasons: presence of continuous problems since the beginning of the data acquisition, unbalanced energy uses in the past data, changes in the consumption patterns without evidence of data problems, etc. Table II–3 gives a list of meters included in this section.

Table II-3 Meters with significant issues in the consumption data during July 2016

Building No.	Building Name	MeterID	Type
290	Wells Residence Hall		
		001984	CHW
		001988	HHW
291	Rudder Residence Hall		
		002132	CHW
		002136	HHW
293	Appelt Residence Hall		
		002062	CHW
		002066	HHW
294	Lechner Residence Hall		
		002285	CHW
		002289	HHW
353	Bright Aerospace Building		
		002746	CHW
		002757	HHW
383	Koldus Building		
		002863	CHW
		002874	HHW
394	Underwood Residence Hall		
		000014	ELE
400	Spence Hall Dorm 1		
		009170	CHW
		009171	HHW
401	Kiest Hall Dorm 2		
		009151	CHW
		009152	HHW
402	Briggs Hall Dorm 3		
		009206	CHW
		009207	HHW
403	Fountain Hall Dorm 4		
		009223	CHW
		009224	HHW
404	Gainer Hall Dorm 5		
		009228	CHW
		009229	HHW
412	Moses Residence Hall		
		002384	CHW
433	Mosher Residence Hall		
		009083	ELE
		002489	HHW
446	Rudder Theatre Complex		
		004297	CHW
		004309	HHW
471	Pavilion		
		002780	HHW
478	Scoates Hall		
		007961	ELE
		007968	CHW
		007969	HHW
496	Utilities & Energy Services Central Office		
		007706	ELE
		006929	CHW
		006933	HHW
499	Engineering Innovation Center		
		002672	CHW
		002683	HHW
506	Nagle Hall		
		001484	ELE
520	Beutel Health Center		
		003785	ELE
524	Blocker building		
		002918	HHW
880	TVMC-Small Animal Building		
		005962	HHW
1026	Veterinary Medicine Administration		
		006053	HHW
1146	Biological Control Facility		
		005795	ELE
1156	Physical Plant Administration & Shops		
		007679	CHW
1184	Veterinary Anatomic Pathology		
		006999	HHW
1197	Veterinary Research Building		
		006355	ELE
		006359	ELE
1501	Kleberg Center		
		002624	CHW
1559	West Campus Parking Garage		
		004322	CHW
1601	International Ocean Discovery Building		
		006351	ELE
		006382	CHW
		008144	CHW
		008145	HHW
1604	Offshore Technology Research Center		
		006659	ELE
		006660	ELE

Wells Residence Hall (TAMU Bldg #290)

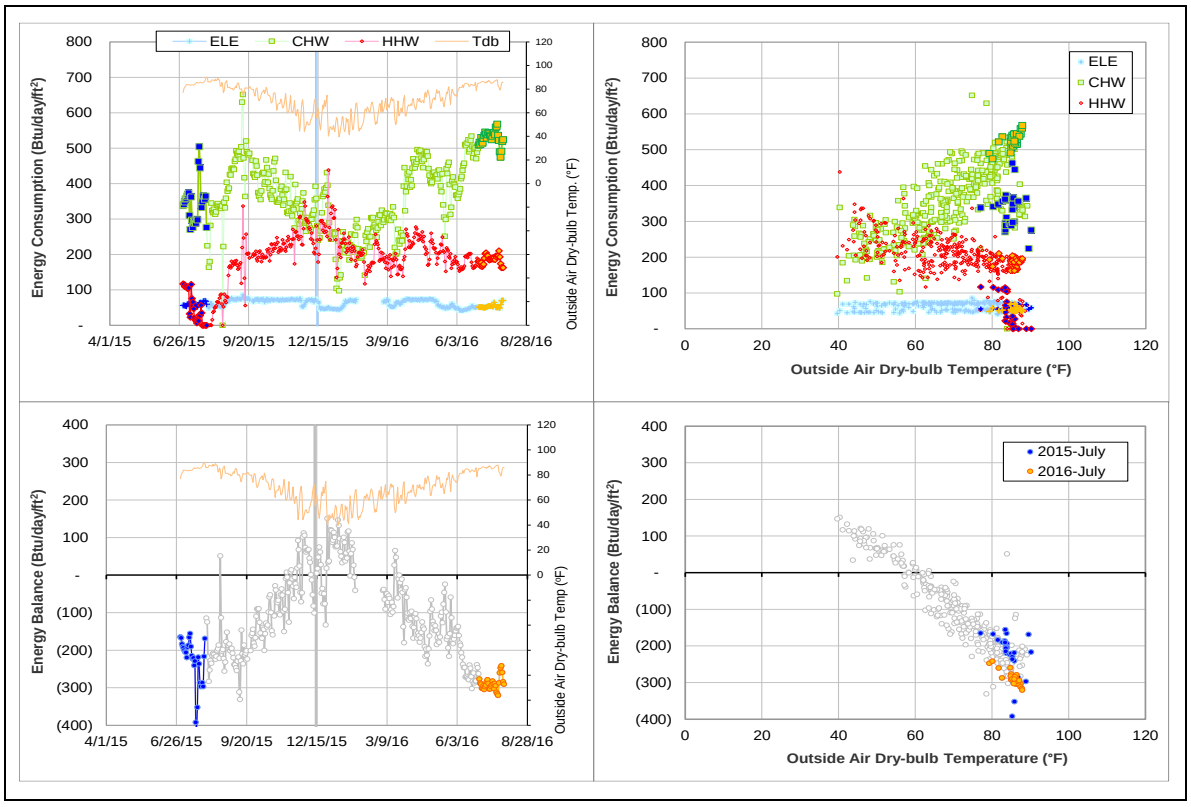
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW/HHW	Both the CHW and HHW consumption levels are higher than the same month of last year.	Since April 2016

Comments

Both the CHW and HHW consumption increased since the month of April 2016. The CHW/HHW consumption of this month was about 150 Btu/day/ft^2 higher than the same month of last year. This building has a low level of energy balance load with the cross-point temperature around 60°F. The low E_{BL} level suggests imbalance of metered energy use in the building, but we are not able to determine the cause.

Explanatory Figure: 13 months energy balance plot with original data



Rudder Residence Hall (TAMU Bldg #291)

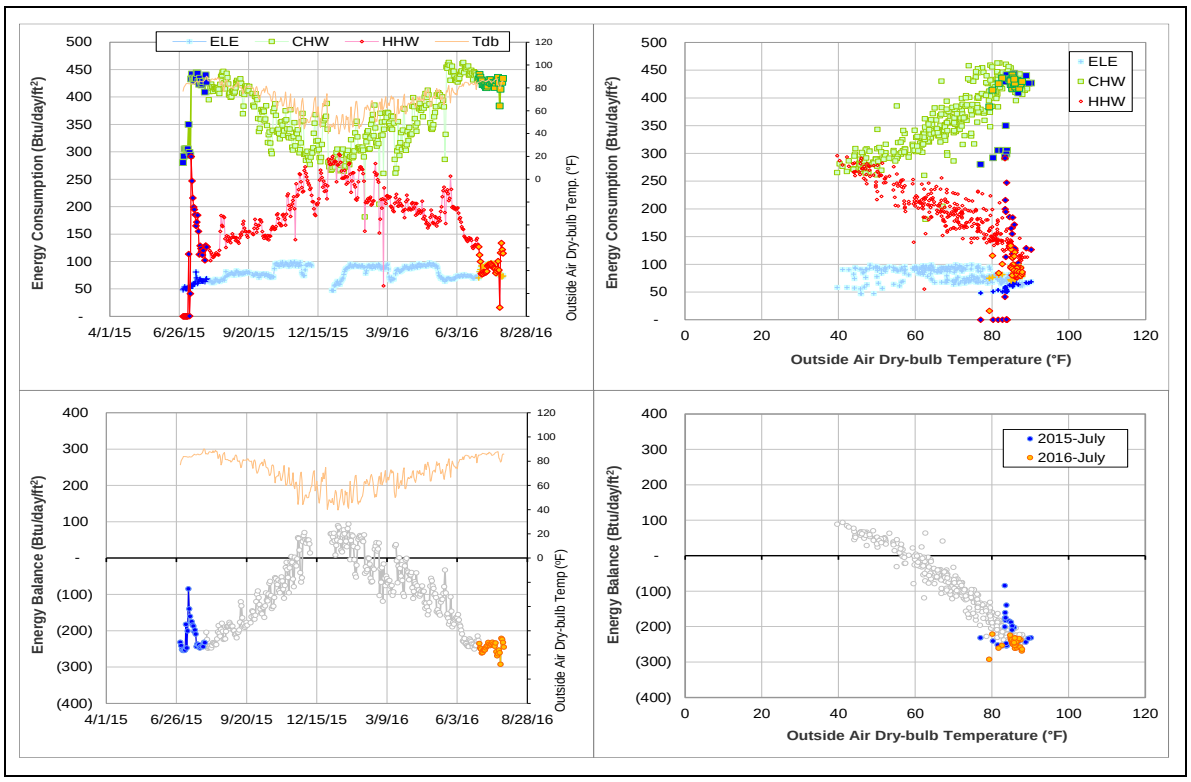
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
Energy Balance	The energy balance level is low. The cross-point temperature is around 60°F.	For several years

Comments

This building has a low level of energy balance load with the cross-point temperature around 60°F for the past year. The low E_{BL} level suggests imbalance of metered energy use in the building, but we are not able to determine the cause.

Explanatory Figure: 13 months energy balance plot with original data



Appelt Residence Hall (TAMU Bldg #293)

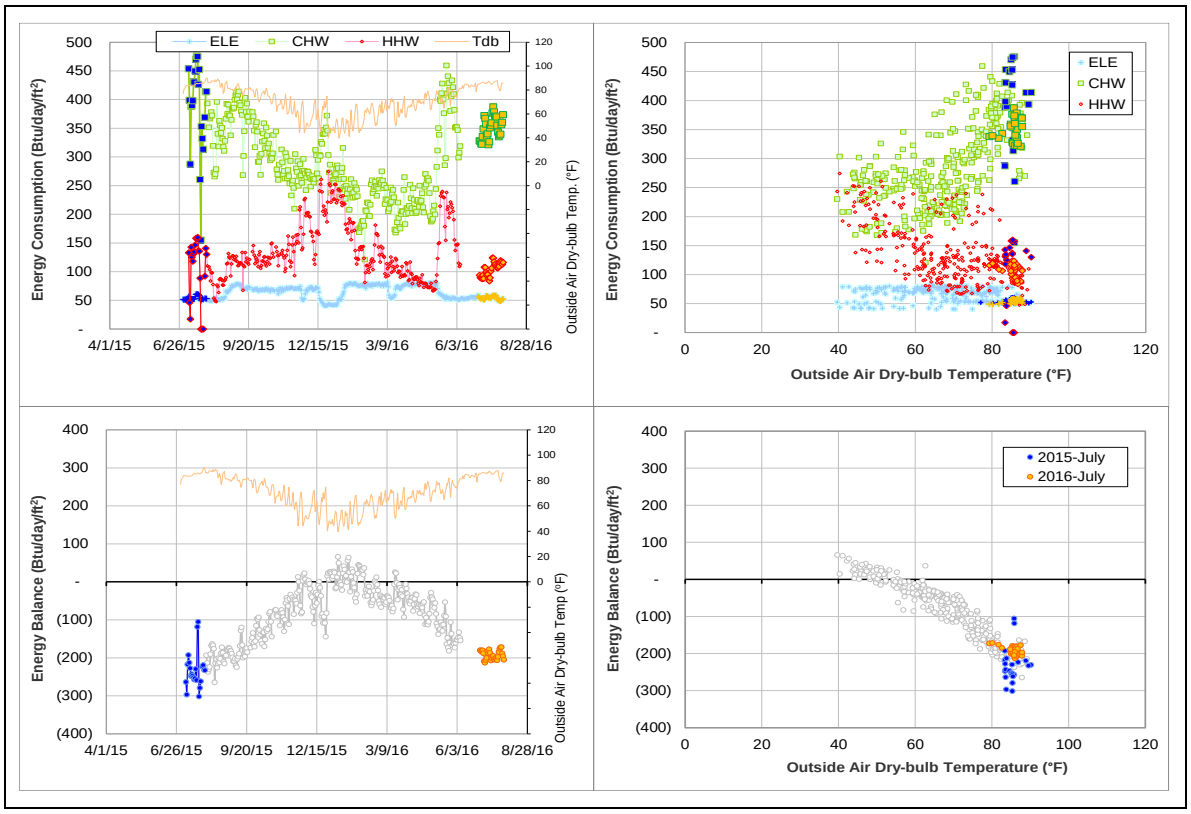
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption level suddenly decreased.	Since December 2014
HHW	The consumption gradually decreased.	Since January 2015
Energy Balance	The energy balance decreased and the cross-point temperature is around 55°F.	Since January 2015

Comments

Both the CHW and HHW consumption levels have decreased, respectively. As a result, the energy balance load was low with the cross-point temperature around 55°F. The low E_{BL} level suggests imbalance of metered energy use in the building, but we are not able to determine the cause.

Explanatory Figure: 13 months energy balance plot with original data



Lechner Residence Hall (TAMU Bldg #294)

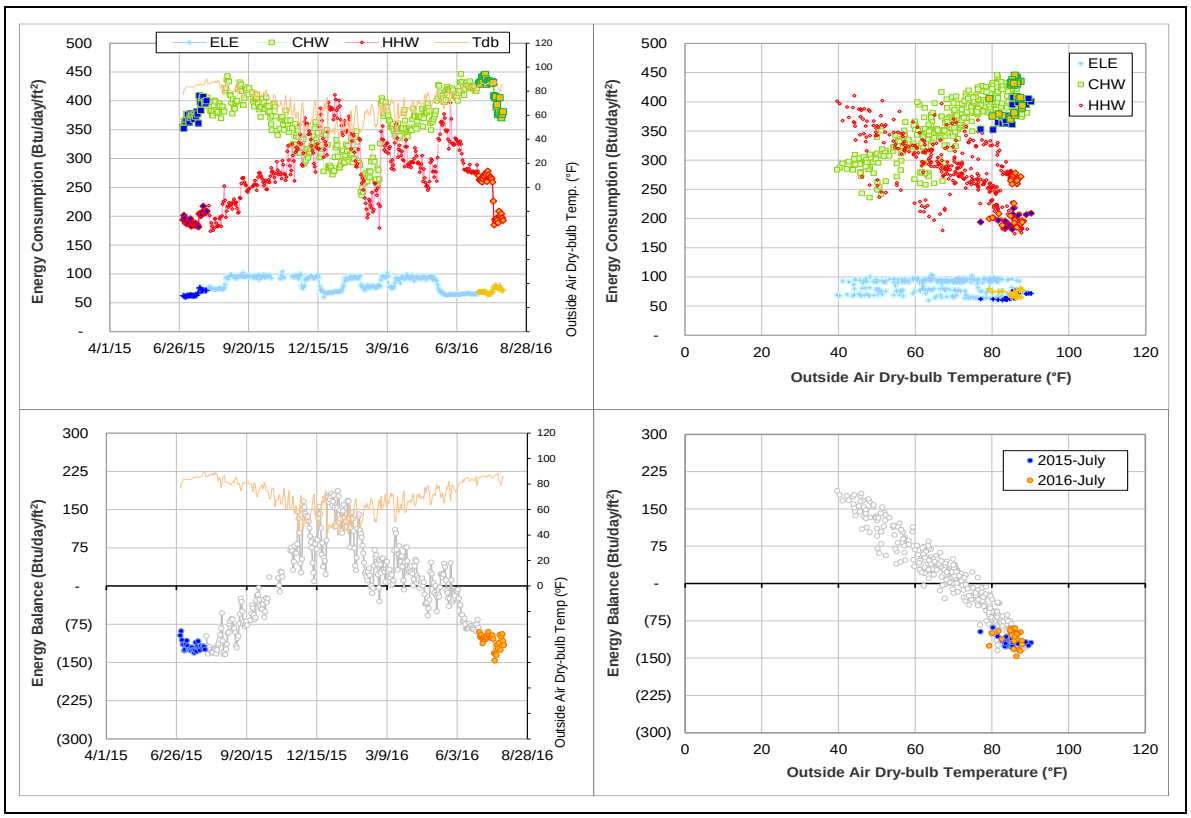
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW/HHW	The consumption level has gradually increased.	Since 5/11/2016

Comments

Since 5/11/2016, the CHW and HHW consumption have increased by 50 Btu/day/ft^2 and 80 Btu/day/ft^2, respectively. On 7/20/2016, both the CHW and HHW consumption decreased back to the previous levels. The energy balance didn't change much all the time.

Explanatory Figure: 13 months energy balance plot with original data



Bright Building (TAMU Bldg #353)

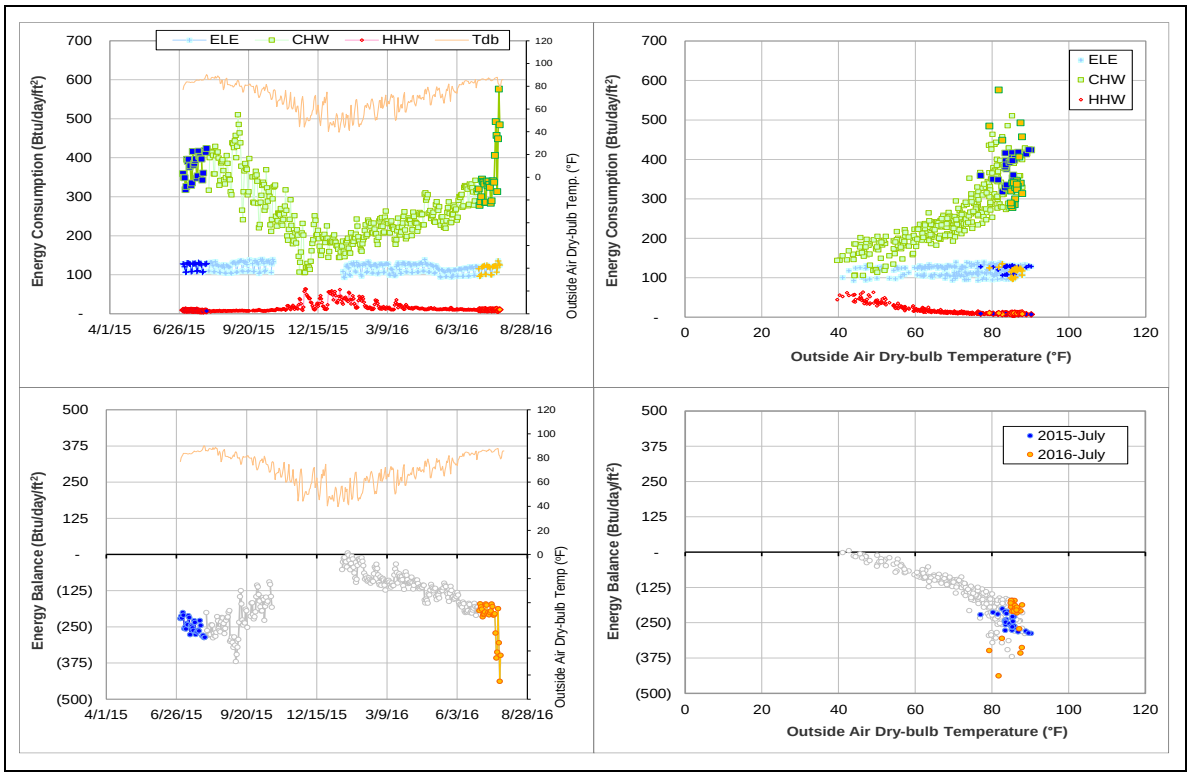
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
Energy Balance	The energy balance level has been low for years. The cross-point temperature was in the range of 40 - 70 °F.	For several years

Comments

The energy balance load (E_{BL}) of this building has varied but always been low (the cross-point temperature was between 40°F and 70°F) for years. In the past 12 months, the cross-point temperature was around 50°F. The electricity use level was in a typical range for office and classroom buildings on campus. Therefore, either CHW or HHW consumption might be causing the unbalanced energy balance in the building.

Explanatory Figure: 13 months energy balance plot with original data



Koldus Building (TAMU BLDG # 383)

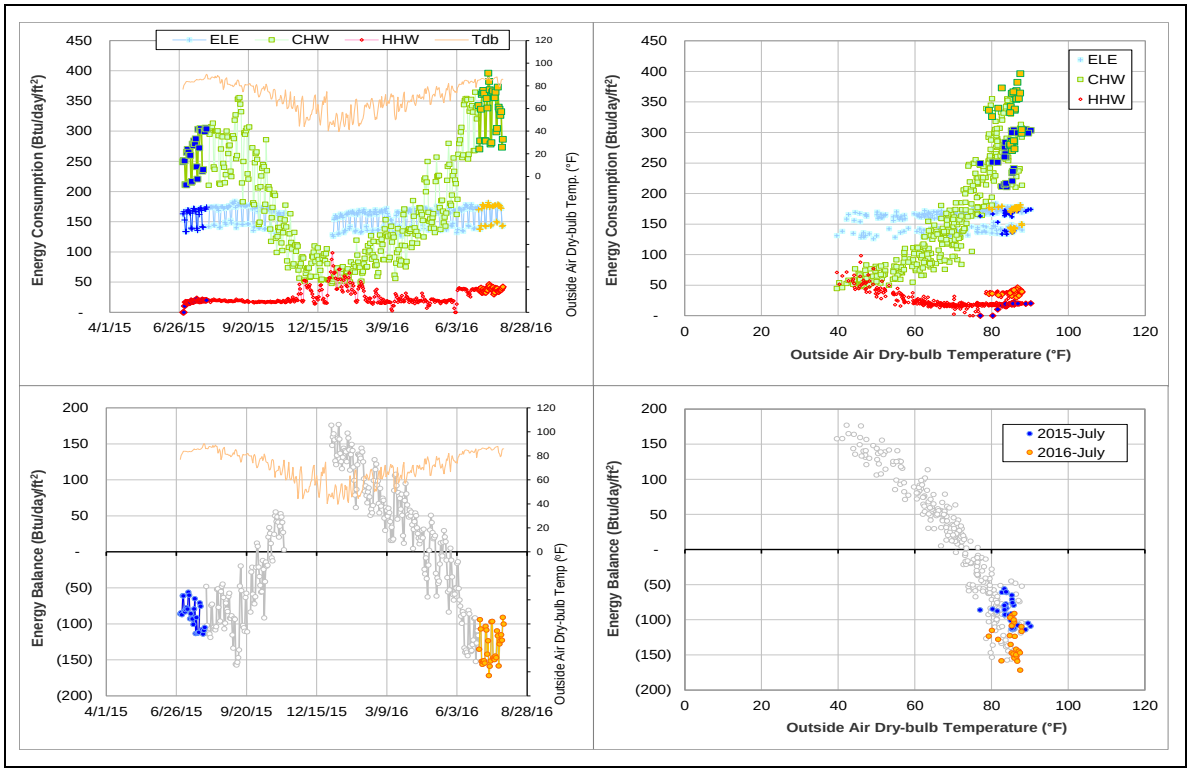
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW/HHW	The consumption suddenly increased.	Since early of June 2016

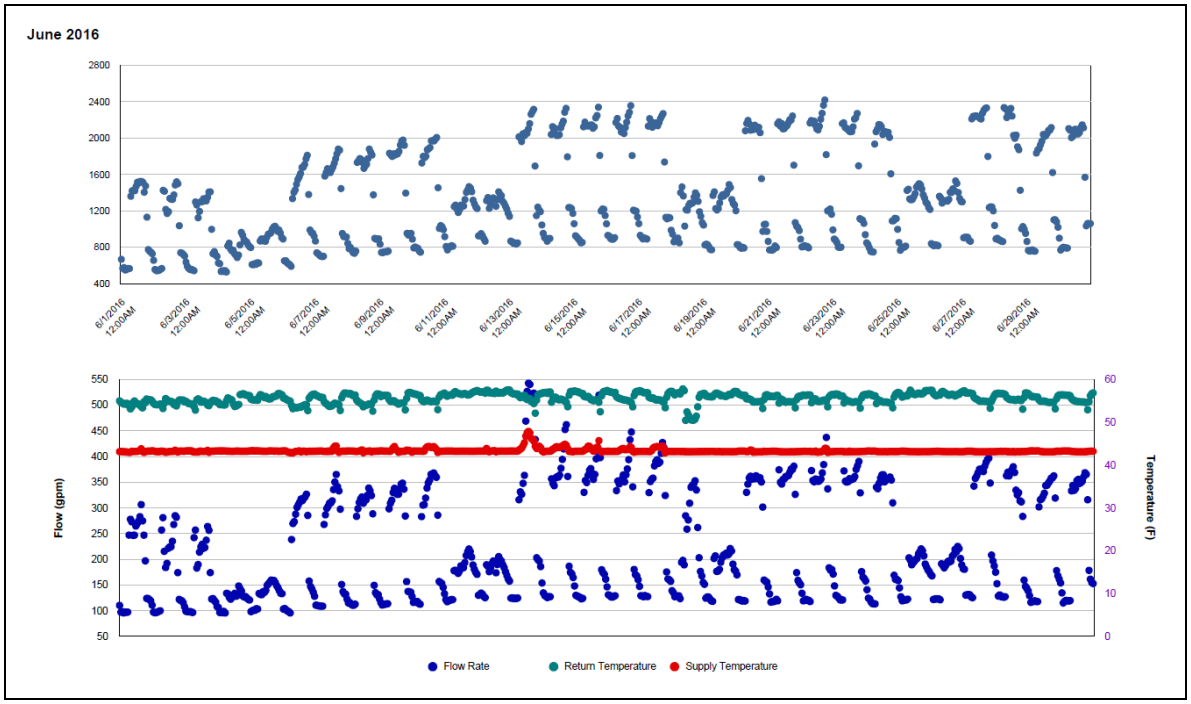
Comments

There CHW and HHW consumption both increased since early of June 2016. CHW consumption was about 50 Btu/day/ft^2 higher the same period of last year, as the return temperature and the flow rate both increased a little since 6/5/2016. Around the same time, HHW consumption was about 20 Btu/day/ft^2 higher comparing to the past year, because the flow rate increased and the return temperature decreased. However, the energy balance didn't change much.

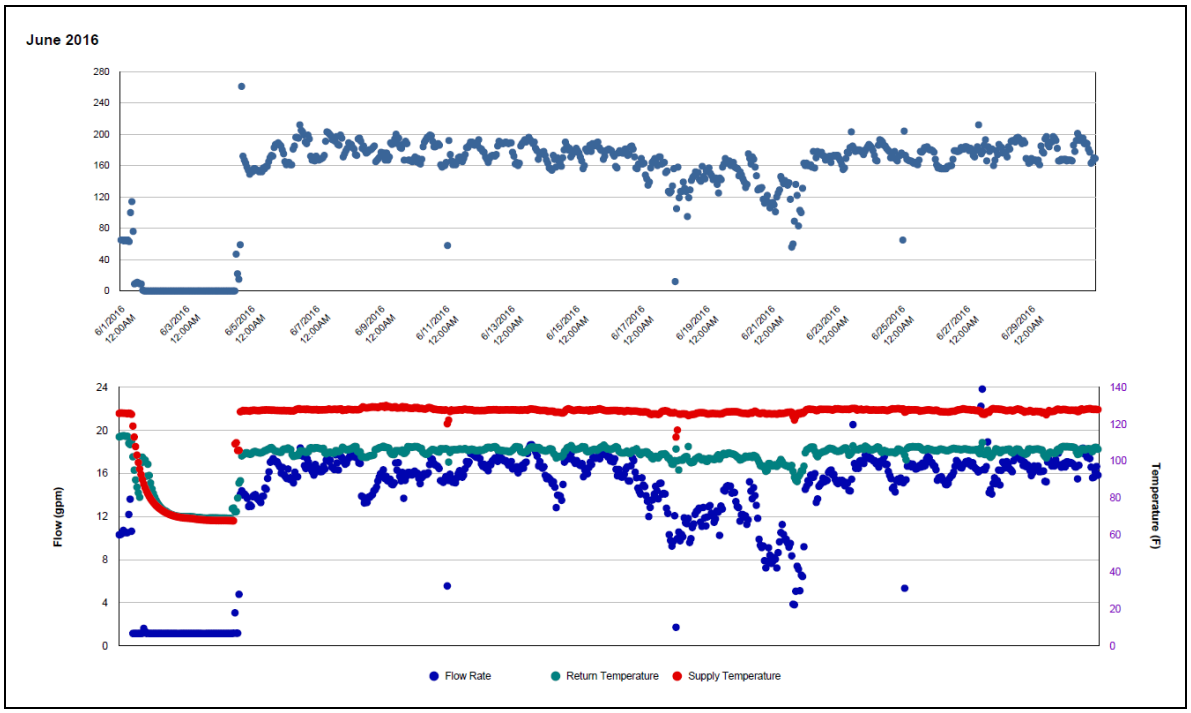
Explanatory Figure: 13 months energy balance plot with original data



Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during June 2016)



Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during June 2016)



Underwood Hall (TAMU BLDG # 394)

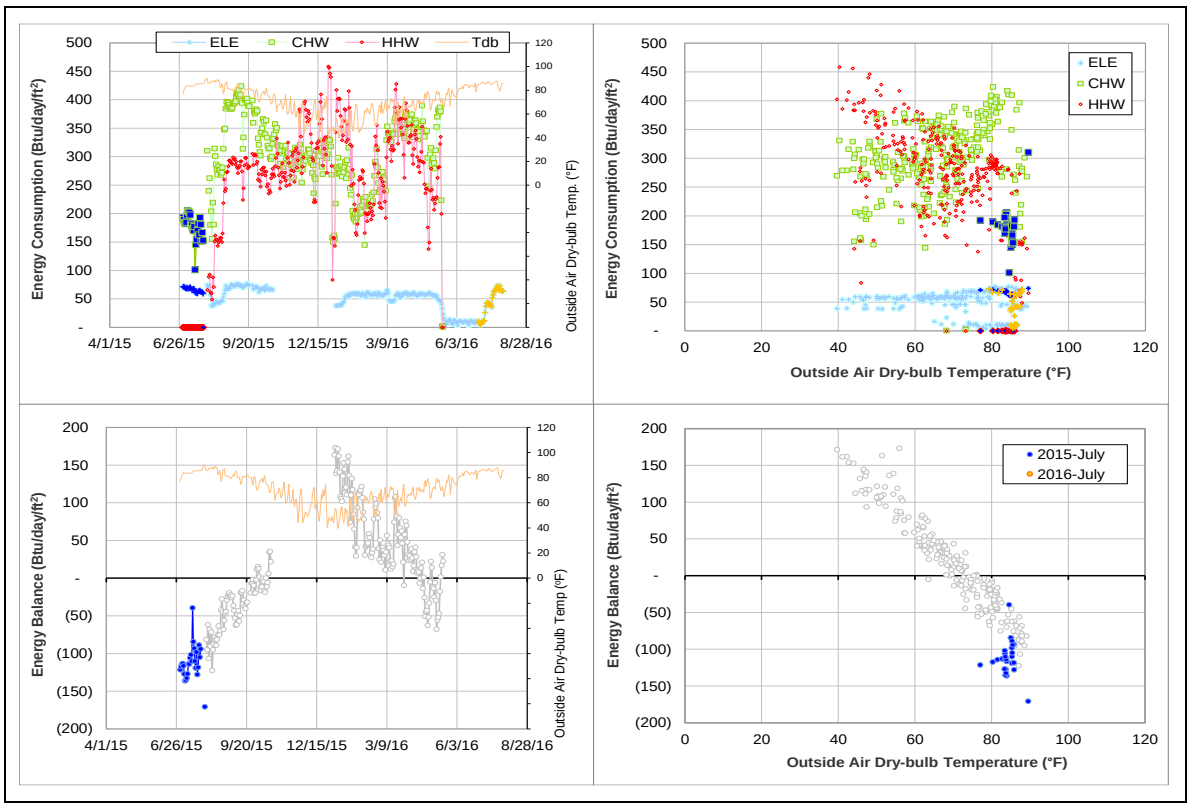
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	The consumption gradually decreased.	Since middle of May 2016

Comments

There was no consumption for CHW and HHW since May 2016, because the HVAC system has been under renovation. The ELE consumption gradually decreased by 50 Btu/day/ft^2 (75%) during the middle of May 2016. The decrease of the ELE use could be related to the renovation. However, the ELE consumption in July 2016 gradually increased back to the previous consumption level.

Explanatory Figure: 13 months energy balance plot with original data



Spence Hall, Kiest Hall, Briggs Hall, Fountain Hall and Gainer Hall (TAMU BLDG # 400, 401, 402, 403 and 404)

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW/HHW	The consumption patterns were scattering.	Since May 2016

Comments

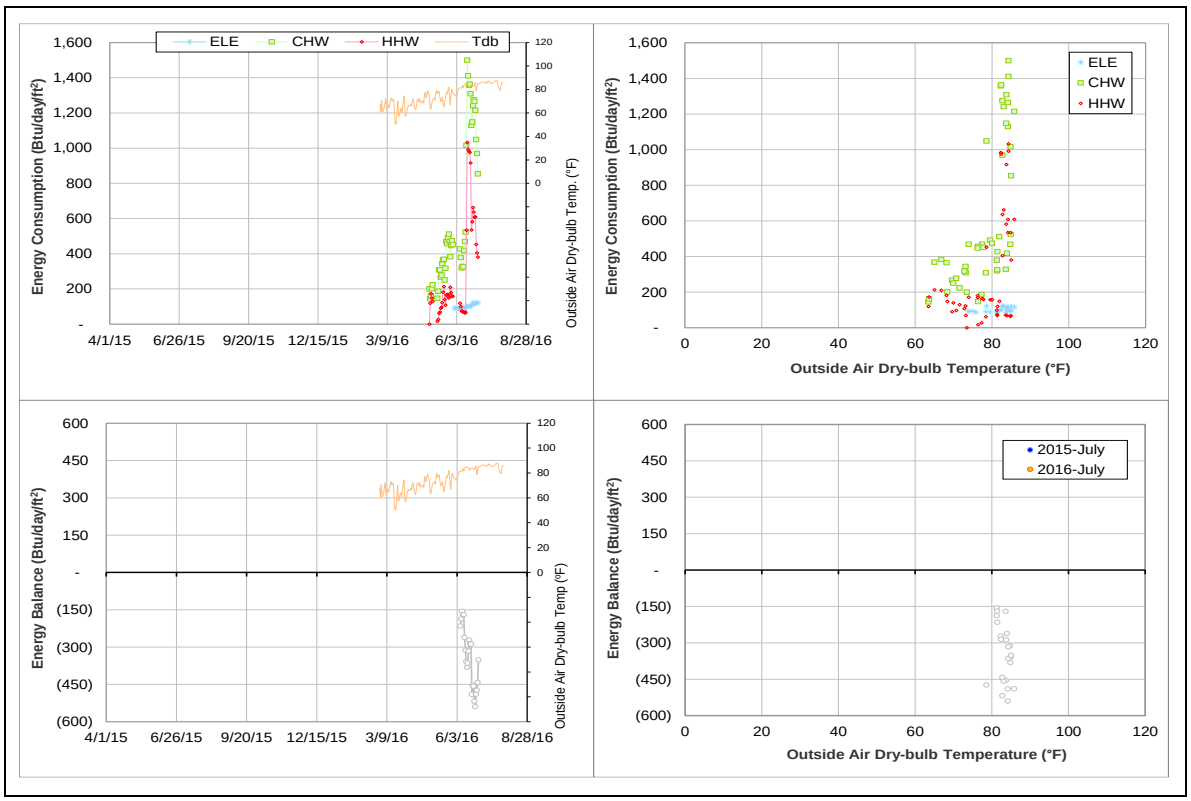
The labeled Spence Hall ELE meter (MID 009169) served #1405 Ash II LLC, #400 Spence Hall and #402 Briggs Hall. The labeled Spence Hall CHW/HHW meters (MID 009170 and 009171) covered #1405 Ash II LLC and #400 Spence Hall. The labeled Kiest Hall ELE meter (MID 009150) served #1404 Plank LLC, #401 Kiest Hall and #403 Fountain Hall. The labeled Spence Hall CHW/HHW meters (MID 009151 and 009152) covered #1404 Plank LLC and #401 Kiest Hall. There is no square footage information about #1405 Ash II LLC and #1404 Plank LLC. From the Google map, the area of each of them is estimated as 5,000 ft^2. Then, the energy balance plots are adjusted by the areas for #400 Spence Hall and #401 Kiest Hall, as shown in the plots below.

The CHW and HHW consumption values for the five residence halls were available since May 2016. However, most of the consumption levels were not stable and the patterns were scattered.

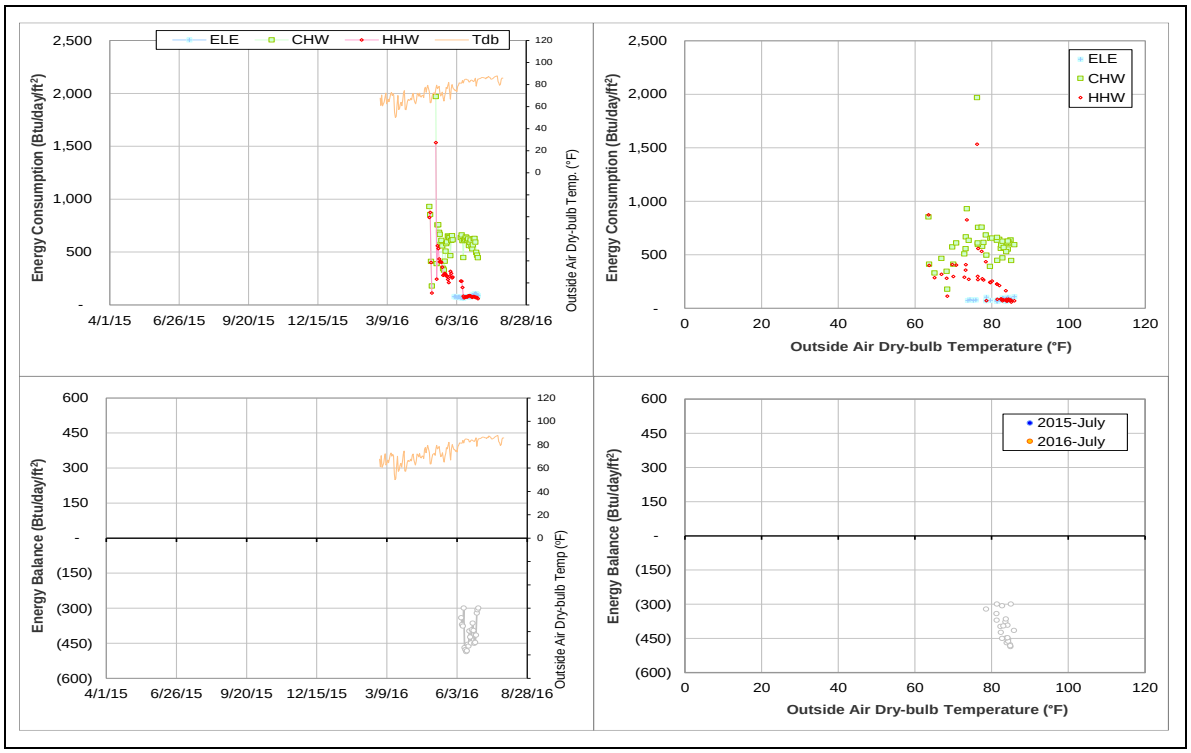
The thermal data for #400 Spence Hall increased from 100-550 Btu/day/ft^2 to 850-1500 Btu/day/ft^2 for CHW consumption and from 0-200 to 400-1000 Btu/day/ft^2 for HHW consumption, respectively, since 6/16/2016. The consumption levels were too high after the increase. If it is assumed the Meters (MID 009170 and 009171) covered #1405 Ash II LLC, #400 Spence Hall and #402 Briggs Hall, the consumption changes would be 70-300 Btu/day/ft^2 to 450-800 Btu/day/ft^2 for CHW and from 0-100 to 200-550 Btu/day/ft^2 for HHW. It could be the CHW/HHW meters mainly covered #1405 Ash II LLC and #400 Spence Hall before 6/16/2016 and then added #402 Briggs Hall. It is recommended to check which buildings were covered by MID 009170 and 009171.

The CHW and HHW consumption for #401 Kiest Hall were mostly in the range of 300-700 Btu/day/ft^2 and 80-600 Btu/day/ft^2, respectively. If CHW/HHW meters (MID 009151 and 009152) covered #1404 Plank LLC, #401 Kiest Hall and #403 Fountain Hall, the consumption levels would be around 200-400 Btu/day/ft^2 for CHW and 40-300 Btu/day/ft^2 for HHW. It is recommended to check which buildings were covered by MID 009151 and 009152.

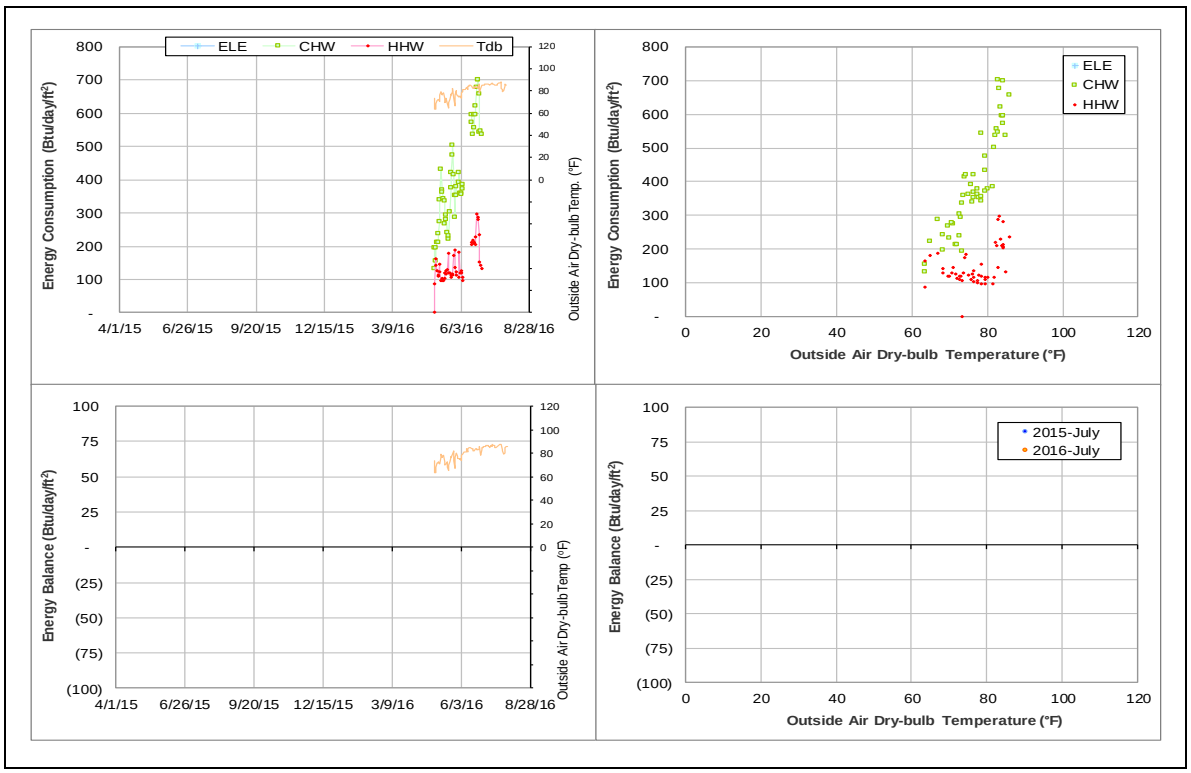
Explanatory Figure: 13 months energy balance plot with original data for Spence Hall



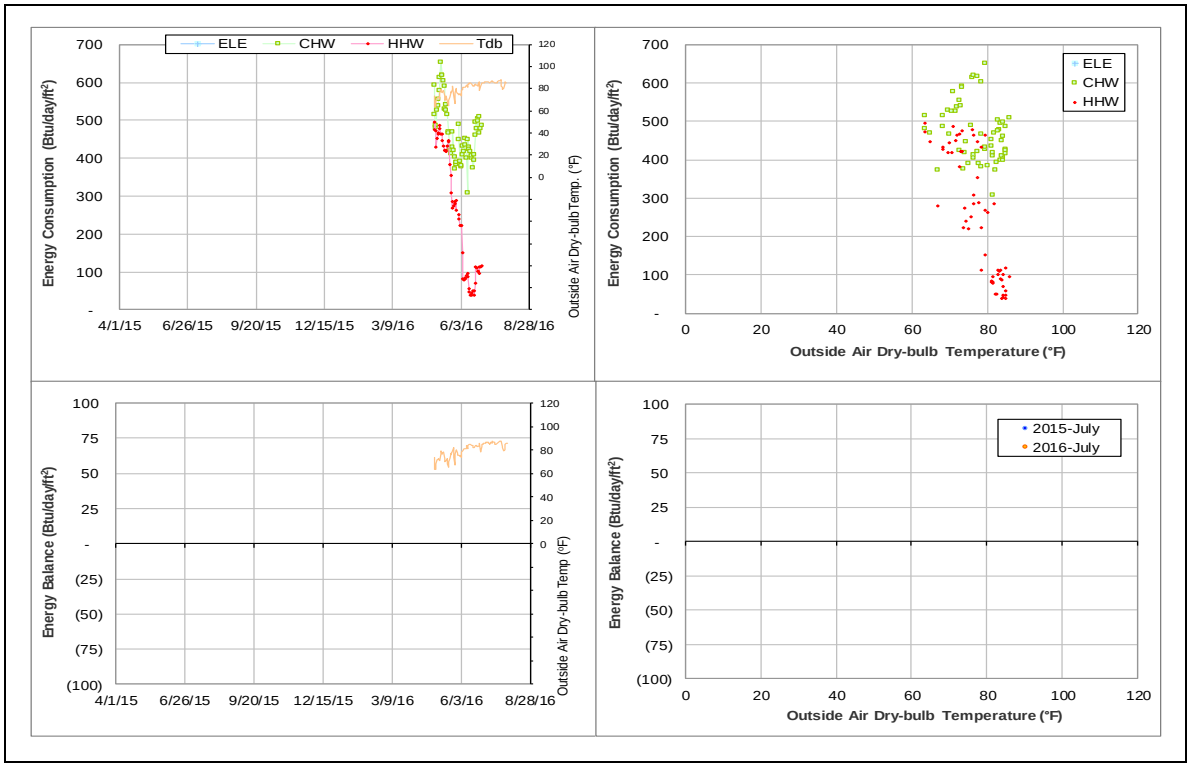
Explanatory Figure: 13 months energy balance plot with original data for Kiest Hall



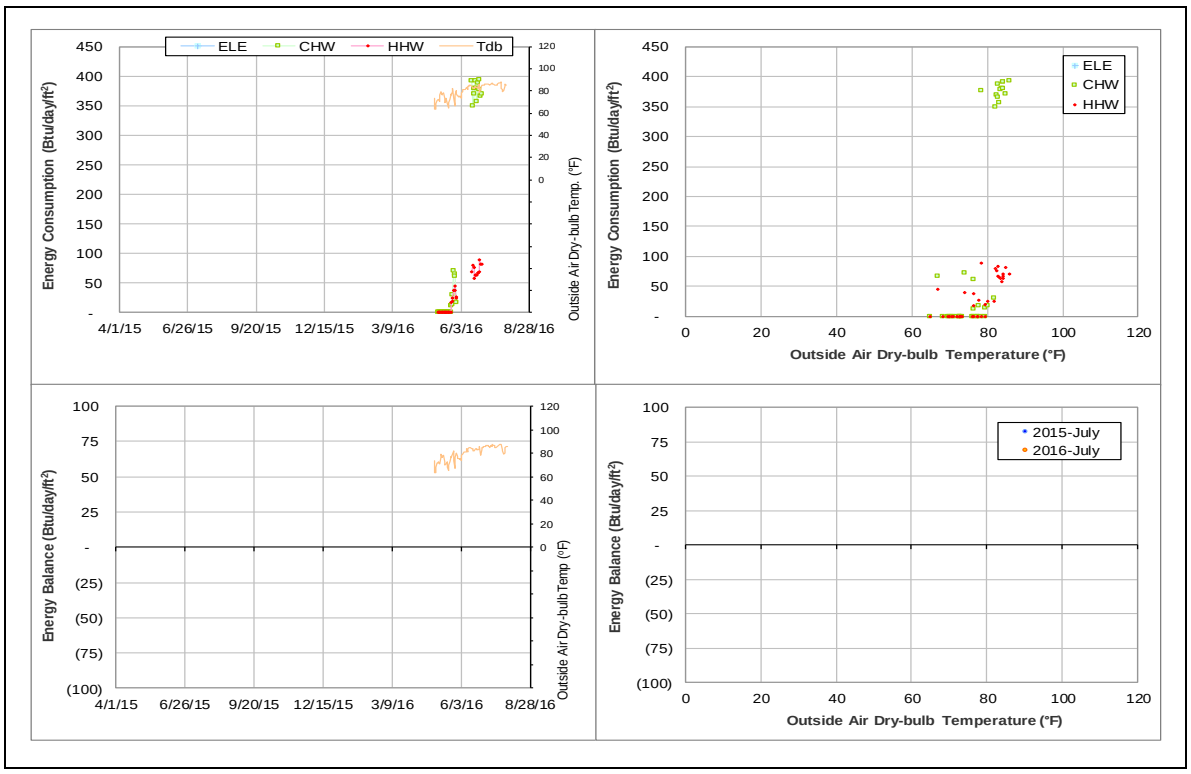
Explanatory Figure: 13 months energy balance plot with original data for Briggs Hall



Explanatory Figure: 13 months energy balance plot with original data for Fountain Hall



Explanatory Figure: 13 months energy balance plot with original data for Gainer Hall



Moses Residence Hall (TAMU BLDG # 412)

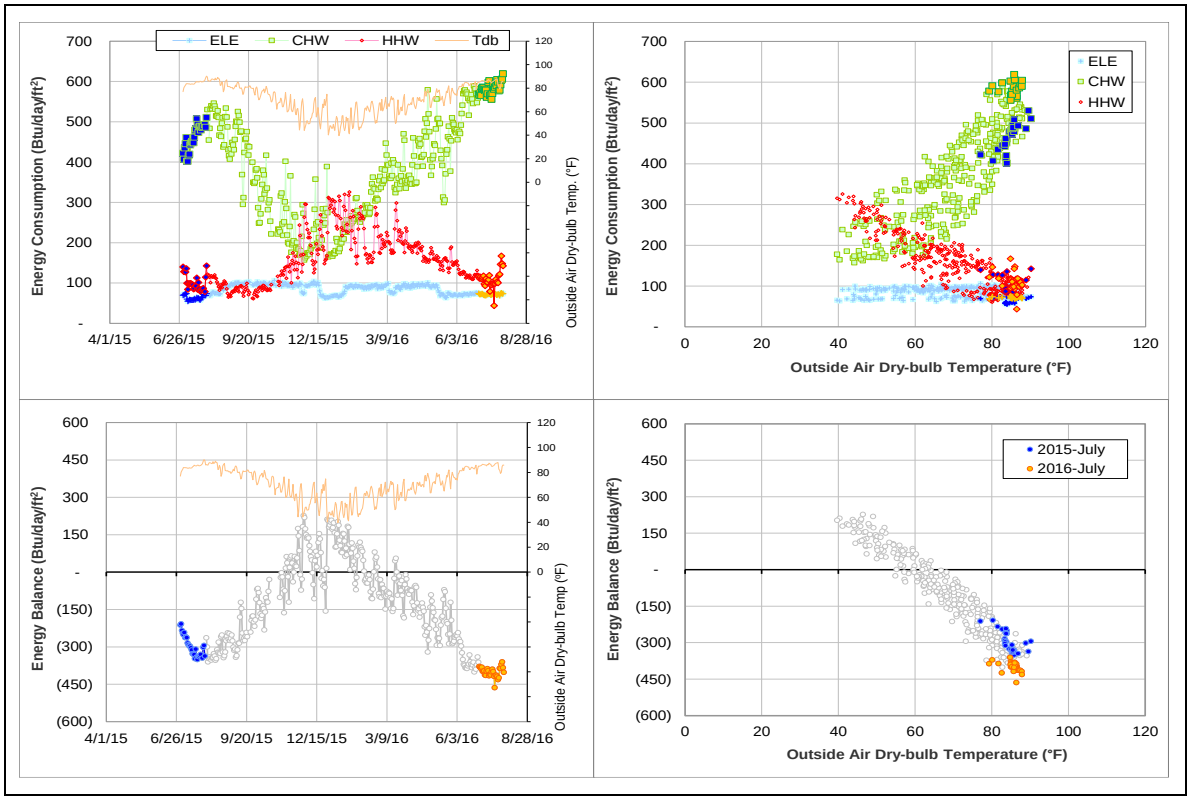
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption level was higher than the same month of last year.	Since March 2016
Energy Balance	The energy balance decreased and the cross-point temperature was around 60°F.	Since March 2016

Comments

The CHW consumption was higher (about 100 Btu/day/ft^2 higher for July) than the same month of the last year since March 2016, which resulted the lower energy balance with the cross-point temperature decreased from 65°F to 60°F.

Explanatory Figure: 13 months energy balance plot with original data



Mosher Residence Hall (TAMU BLDG # 433)

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	The consumption level suddenly decreased.	Since 1/23/2016
ELE	The consumption gradually decreased.	Since middle of May 2016
HHW	The consumption gradually increased.	Since middle of May 2016

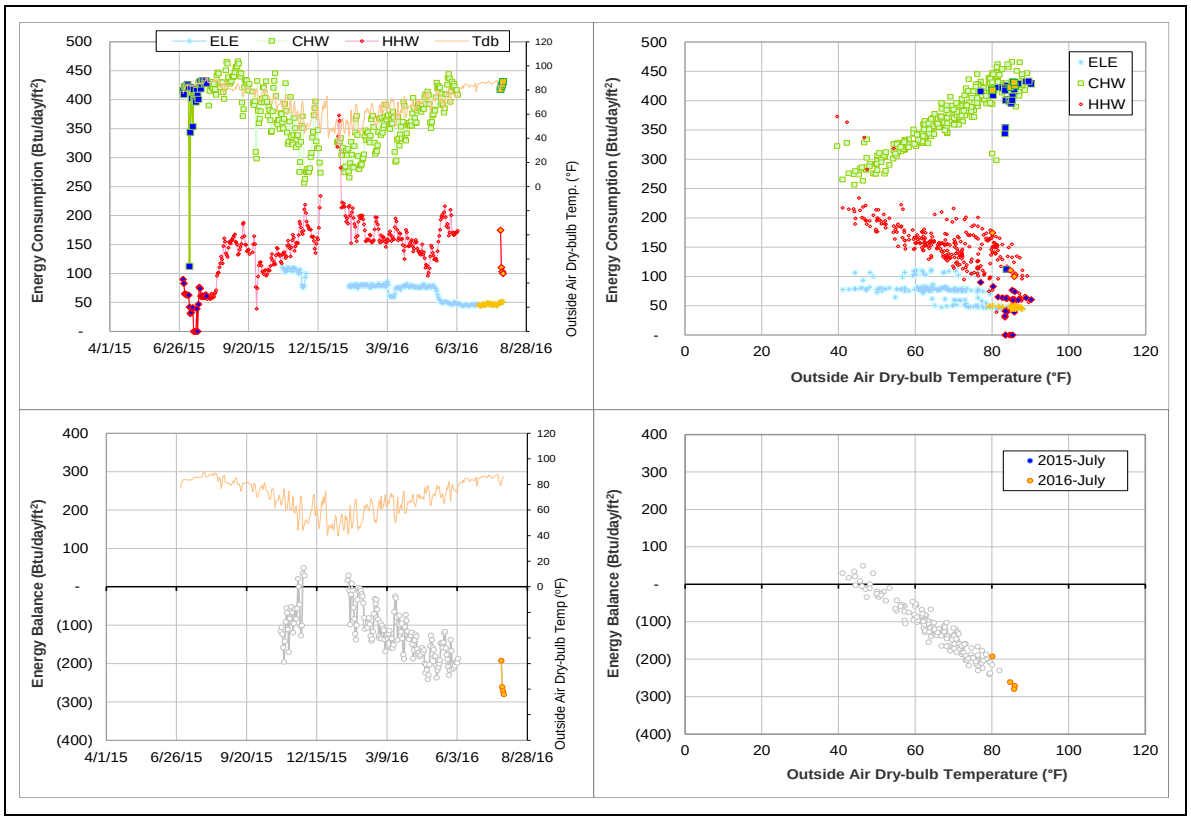
Comments

The cross-point temperature for this building was around 55°F before March 2015. CHW consumption increased 50- 100 Btu/day/ft^2 due to an increase of flow rate after March 2015 and the pattern was stable over one year. As a result, the cross-point temperature decreased from ~ 55°F to ~50°F.

The ELE meter (MID 009083) replaced old meter (MID 000290) since January 2016. After that, the consumption decreased from ~105 Btu/day/ft^2 to ~80 Btu/day/ft^2 (approximately 25%). The CHW and HHW consumption levels didn't changed. The cross-point temperature was further decreased and it is lower than 50°F now. It is suggested to investigate this meter.

In the middle of May 2016, the ELE further decreased to 50 Btu/day/ft^2 and the HHW consumption increased by 50 Btu/day/ft^2. However, the energy balance pattern didn't change.

Explanatory Figure: 13 months energy balance plot with original data



Rudder Theatre Complex (TAMU BLDG # 446)

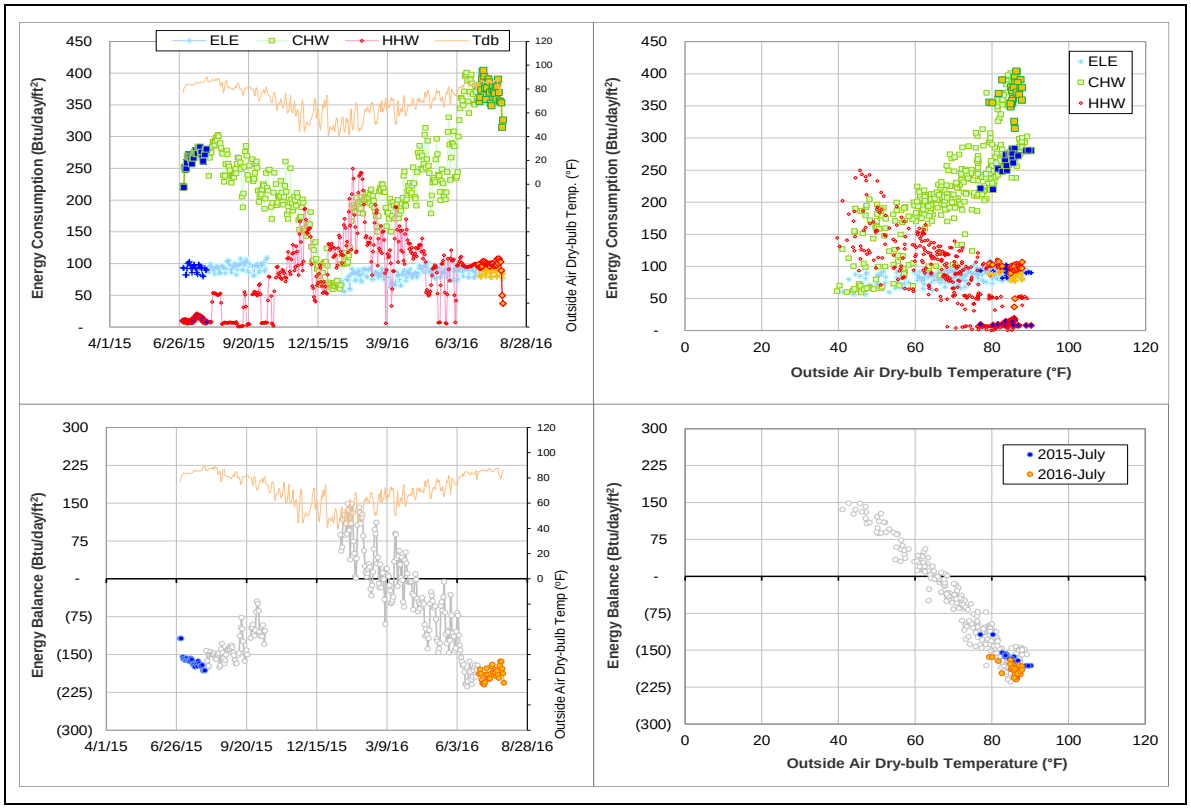
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW/HHW	The consumption has increased, and was higher than the same month of last year.	Since June 2016

Comments

The CHW and HHW consumption has increased and was about 120 But/day/ft^2 higher than the same month of last year. However, the energy balance pattern didn't change.

Explanatory Figure: 13 months energy balance plot with original data



Pavilion (TAMU Bldg #471)

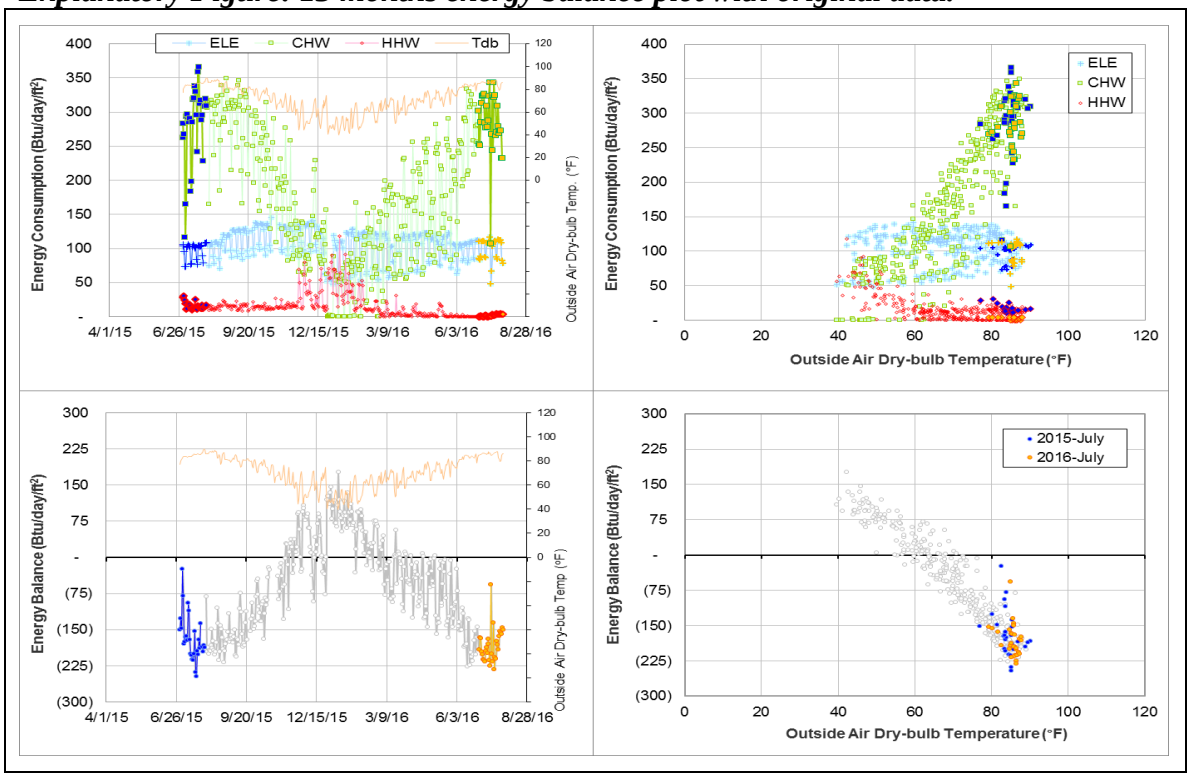
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	Drop in HHW flow.	3/2/2016 – ongoing

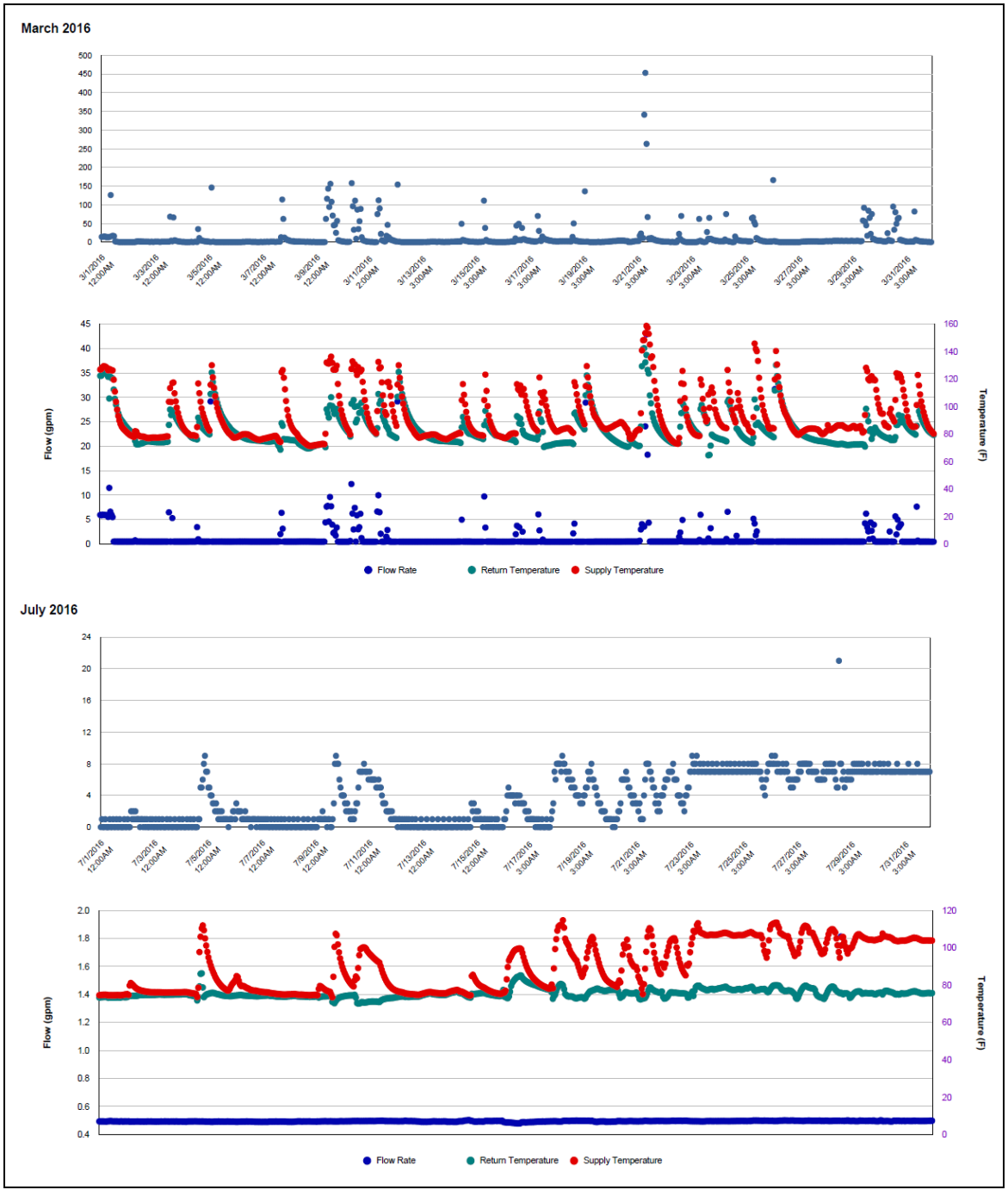
Quantitative descriptions and comments

Prior to March 2016, the HHW minimum flow ranged around 6 gpm. Starting March 2, 2016 the HHW minimum flow dropped to around 0 gpm. The HHW might not to be actually used during summer.

Explanatory Figure: 13 months energy balance plot with original data.



Explanatory Figure: Time series plots of hourly HHW energy consumption, flow rate, and supply and return temperatures from the utilities office for March 2016 (above) and July 2016 (below). The March plot shows the drop in flow around the 2nd.



Scoates Hall (TAMU Bldg #478)

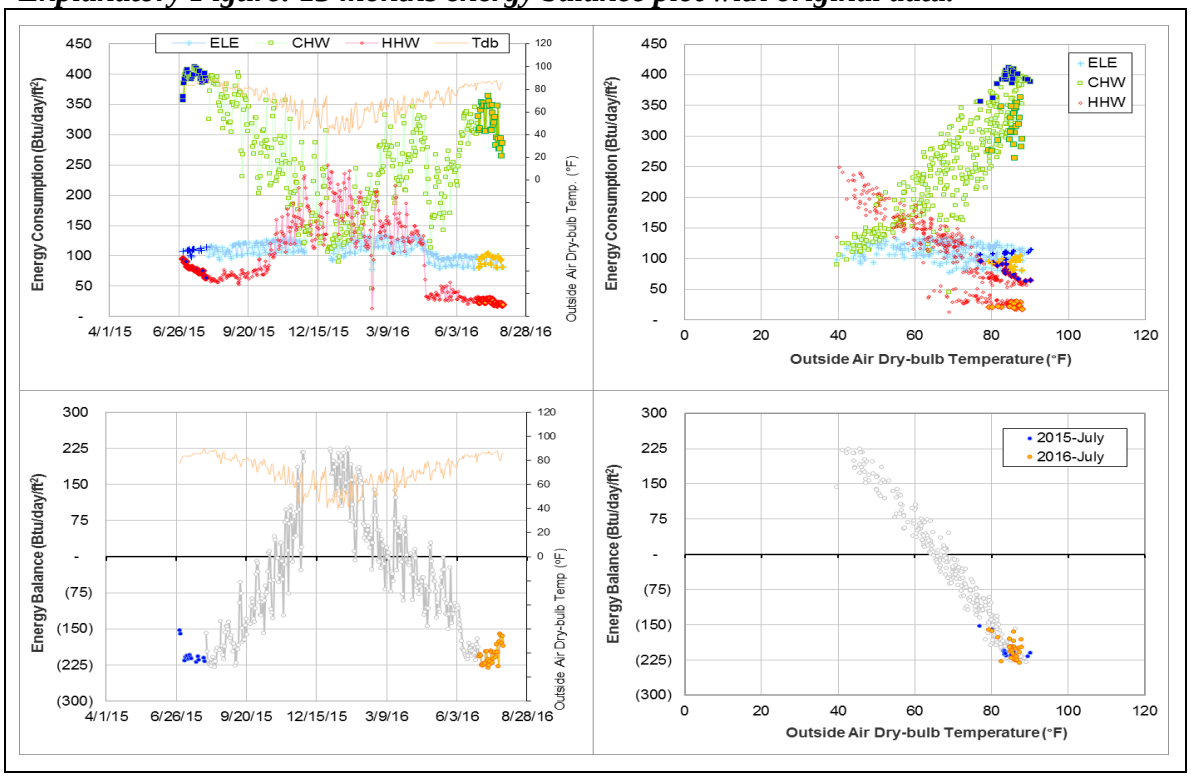
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE, CHW, and HHW	The consumption level has significantly decreased.	4/26/2016 – on going

Quantitative descriptions and comments

ELE, CHW, and HHW all saw a significant decrease in consumption starting since 4/26/2016. Since the energy balance plot has retained its pattern, the drop may be due to a decrease in usage that is associated with the end of the spring semester.

Explanatory Figure: 13 months energy balance plot with original data.



Bolton Hall (TAMU Bldg #480), Heaton Hall (TAMU Bldg #481), Fermier Hall (TAMU Bldg #482), Halbouty Geosciences Building (TAMU Bldg #490), Beutel Health Center (TAMU Bldg #520), Wisenbaker Engineering Research Center (TAMU Bldg #682)

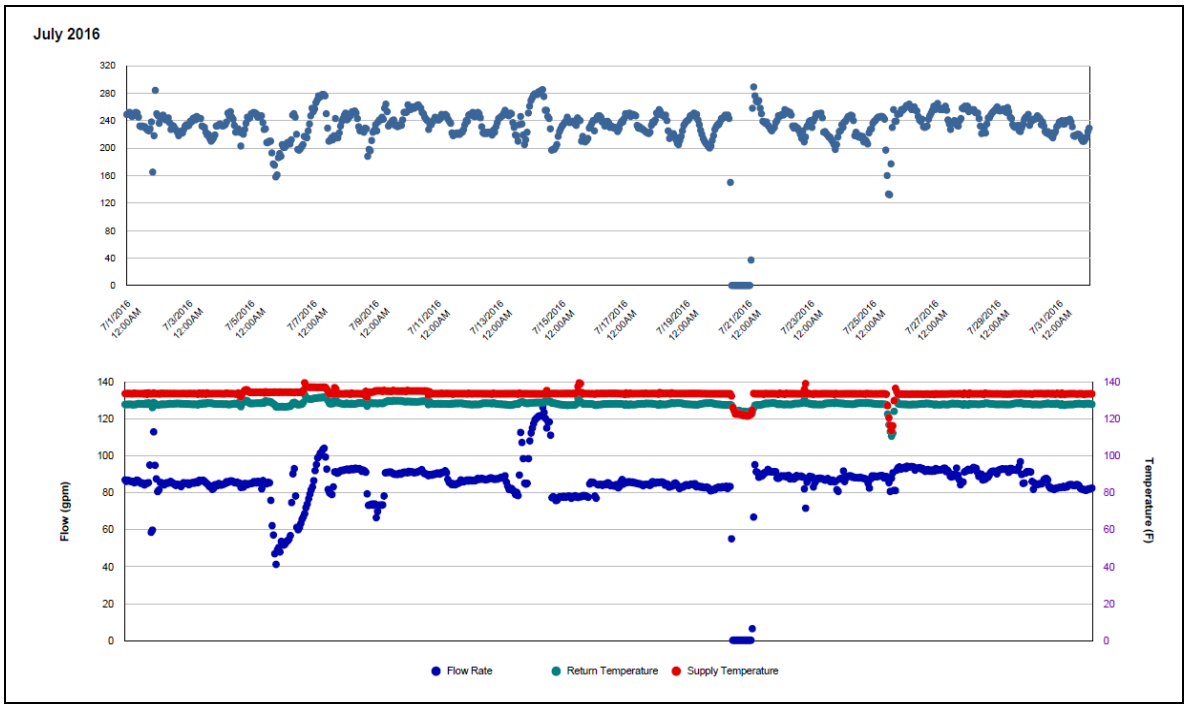
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption drops low for short period.	7/20/2016

Comments

The HHW flow rate and delta T reduced suddenly for a short period of time on 7/20/2016 at the following buildings: #480, #481, #482, #490, #520, and #682. Since the event took place simultaneously at multiple locations, it is possibly the result of some type of test being performed by operators.

Explanatory Figure: Halbouty Geosciences Building (TAMU Bldg #490) time series plots of hourly HHW energy consumption, flow rate, and supply and return temperatures from the utilities office. Note the reduction in flow rate and delta-T on 7/20/2016.



Utilities & Energy Services Central Office (TAMU Bldg #496)

Detected issues in the energy balance and/or the consumption data

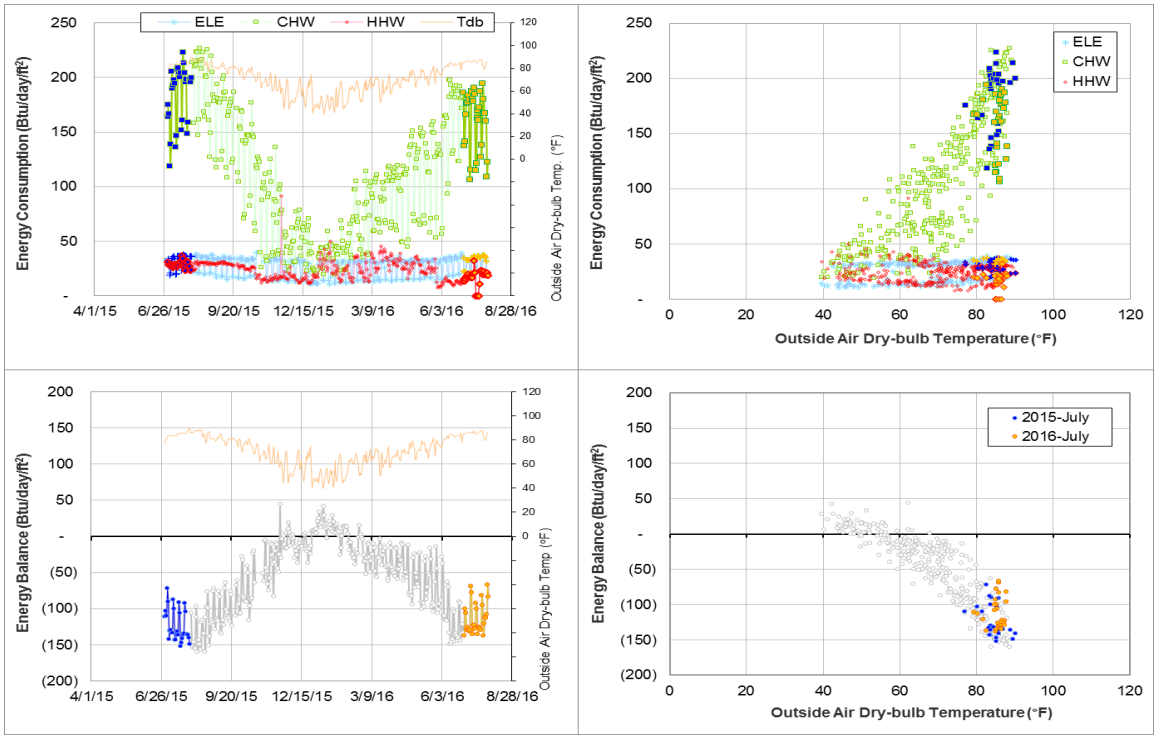
Data Type	Description of data behaviors	Period
ELE, CHW, and HHW	The energy use per unit floor area was low compared to other buildings.	Since the data became available on 7/1/2012

Quantitative descriptions and comments

The peak electricity use density was around 0.65 W/ft^2 which is small compared to that of other office buildings on campus. The delta T for HHW seemed to be small for years. The CHW and HHW consumption per the unit floor area also seemed to be low. It is possible that the GSF we have (46,110 ft^2) includes substantial unoccupied space.

The energy balance was scattered due to the consumption level changes for CHW and HHW, the cross-point temperature of the energy balance was ranged around 50 to 70°F.

Explanatory Figure: 13 months energy balance plot with original data.



Engineering Innovation Center (TAMU Bldg # 499)

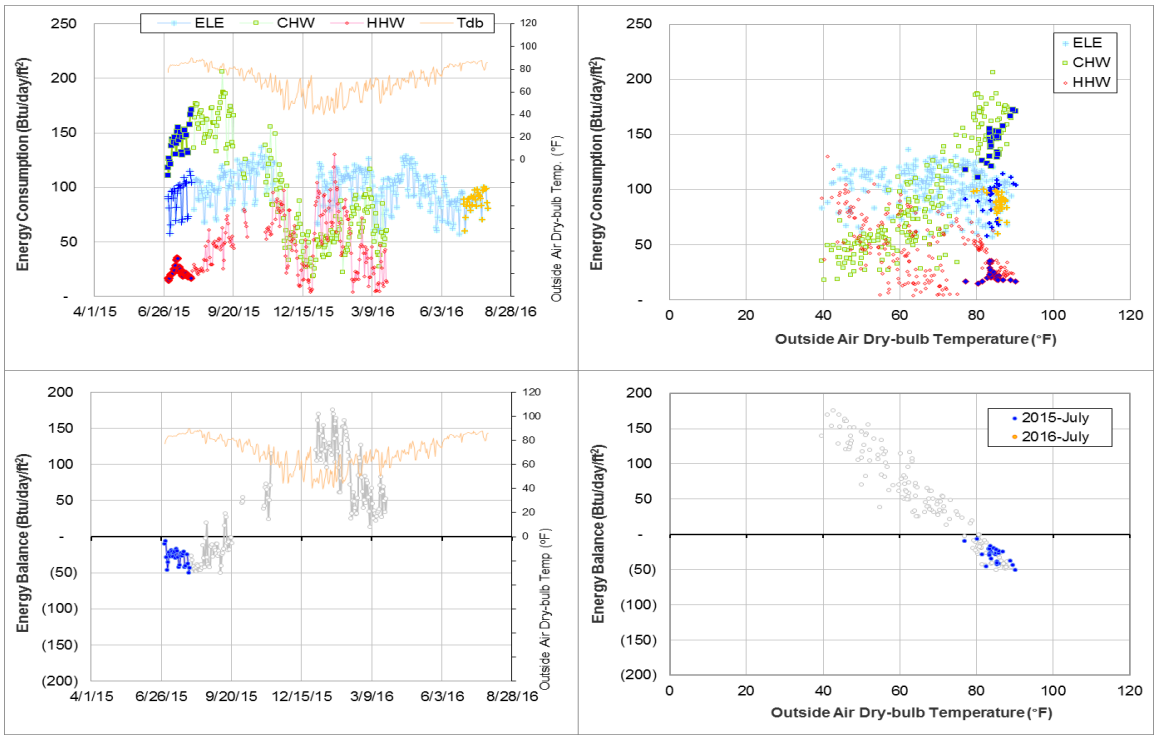
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
Energy Balance	The cross-point temperature is high.	For years
CHW	The consumption level is low compared to the ELE and HHW consumption.	For years
HHW	The consumption was lower than the same period of last year.	Since December 2015

Comments

The cross-point temperature of the energy balance is around 80°F. The CHW consumption is relatively low and its delta T is always small. The HHW consumption since December 2015 is much lower than the same month of last year (about 100 Btu/day/ft^2 lower).

Explanatory Figure: 13 months energy balance plot with original data. CHW and HHW data is not available for the months of April – July and do not appear in the below plots.



Nagle Hall (TAMU Bldg #506)

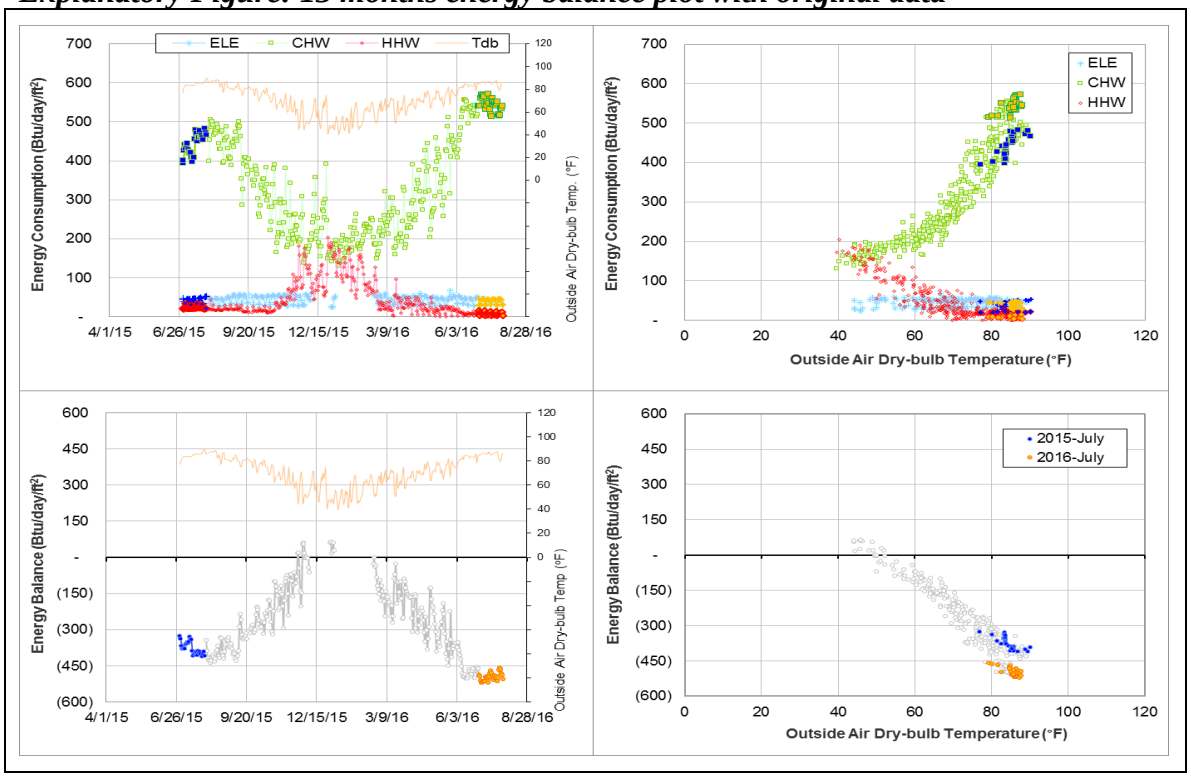
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
Energy Balance	The level was low and the cross-point temperature was around 50°F.	The cross-point temperature has always been low.
ELE	The consumption per unit floor area was smaller than those for other office buildings.	The level was always low and gradually decreased over the past 4 years.

Comments

The ELE consumption was about 100 Btu/day/ft^2 lower than the levels in typical office buildings on campus, and this might be a metering error or this meter might not cover the whole building.

Explanatory Figure: 13 months energy balance plot with original data



Beutel Health Center (TAMU Bldg #520)

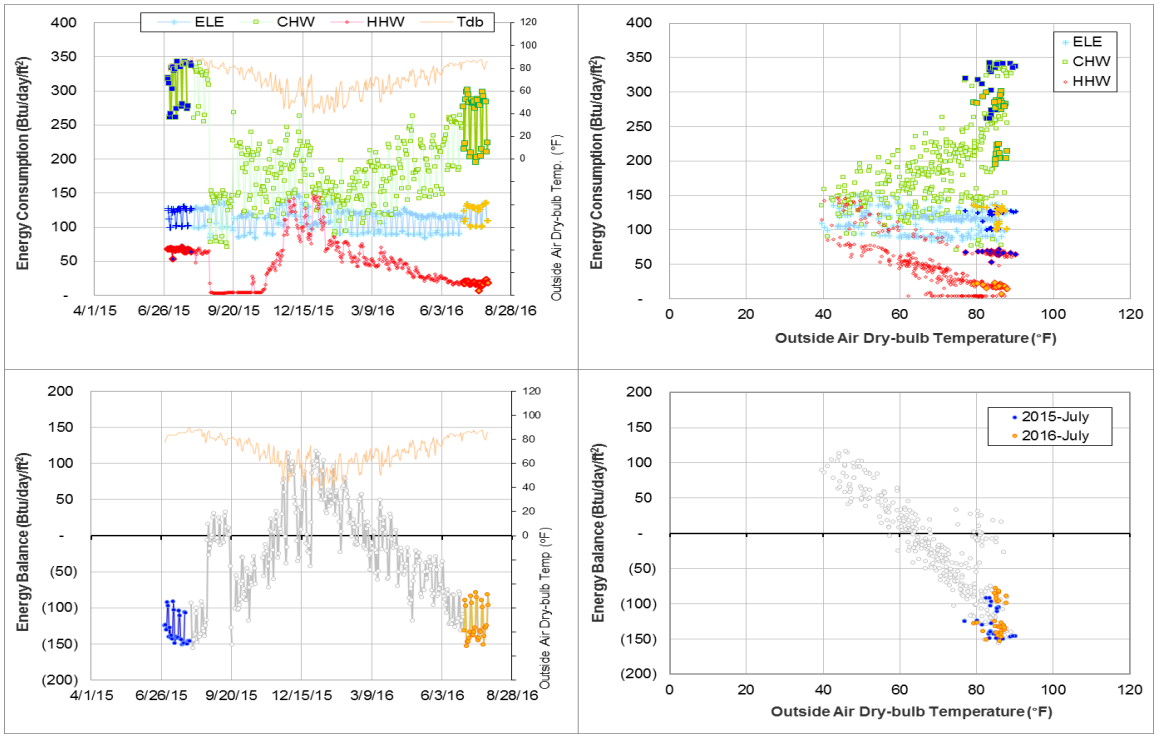
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	The consumption level increased.	7/2/2016 – on going

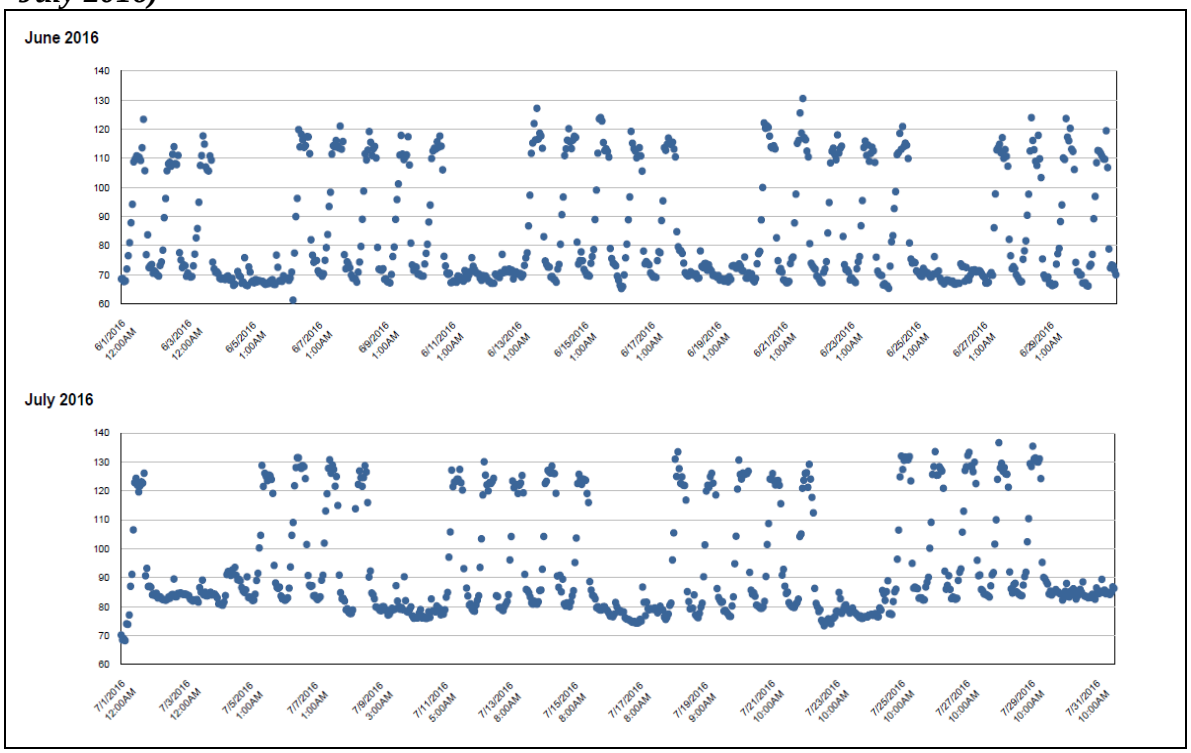
Comments

The ELE consumption seems to have increased around 7/2/2016. The building's base electrical load increased from 70 kW in June to 80 kW in July.

Explanatory Figure: 13 months energy balance plot with original data



Explanatory Figure: Time series plots of hourly ELE energy consumption from the utilities office. The increase can be seen around 7/2/2016. (top: June 2016, bottom: July 2016)



Blocker Building (TAMU Bldg #524)

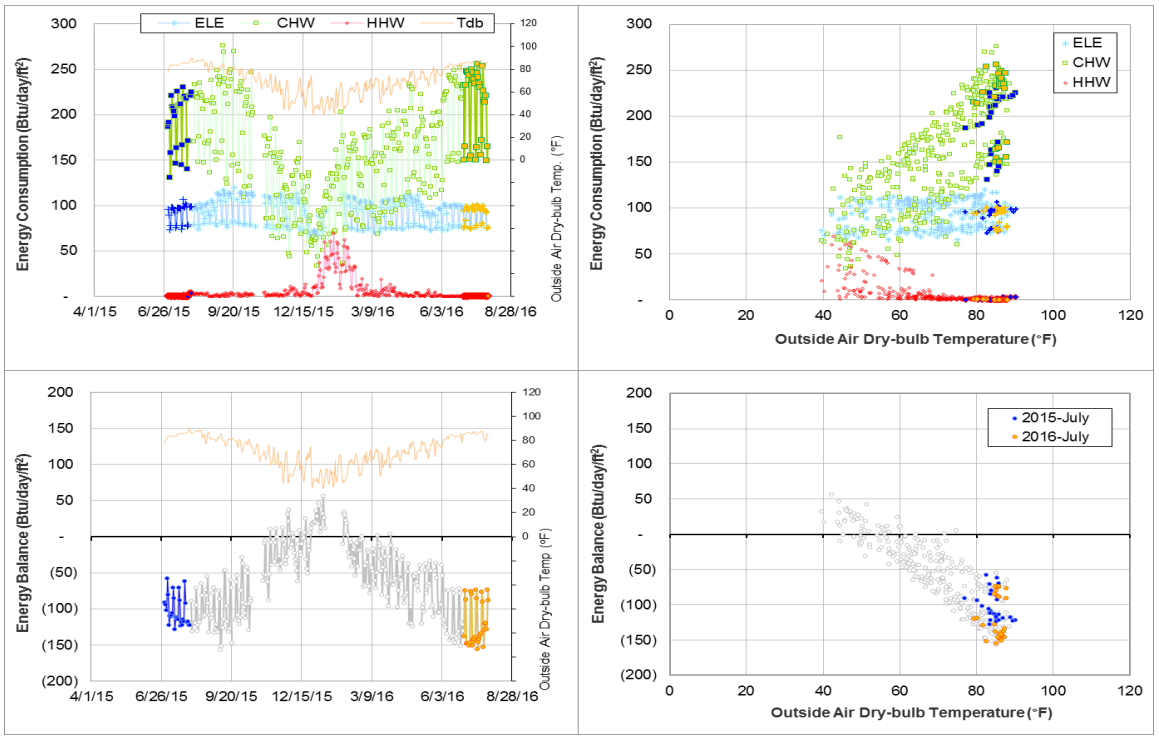
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption level might be low.	Past several years

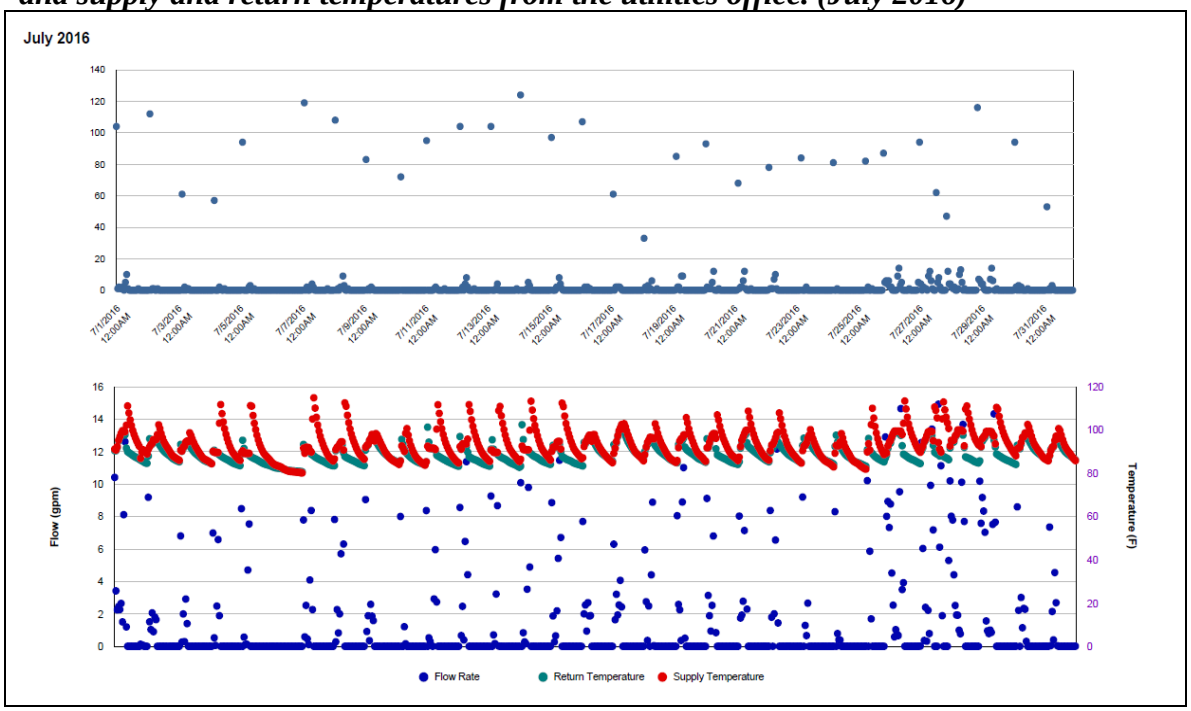
Quantitative descriptions and comments

The delta T and consumption level for HHW seems low for the past couple of years.

Explanatory Figure: 13 months energy balance plot with original data



Explanatory Figure: Time series plots of hourly HHW energy consumption, flow rate, and supply and return temperatures from the utilities office. (July 2016)



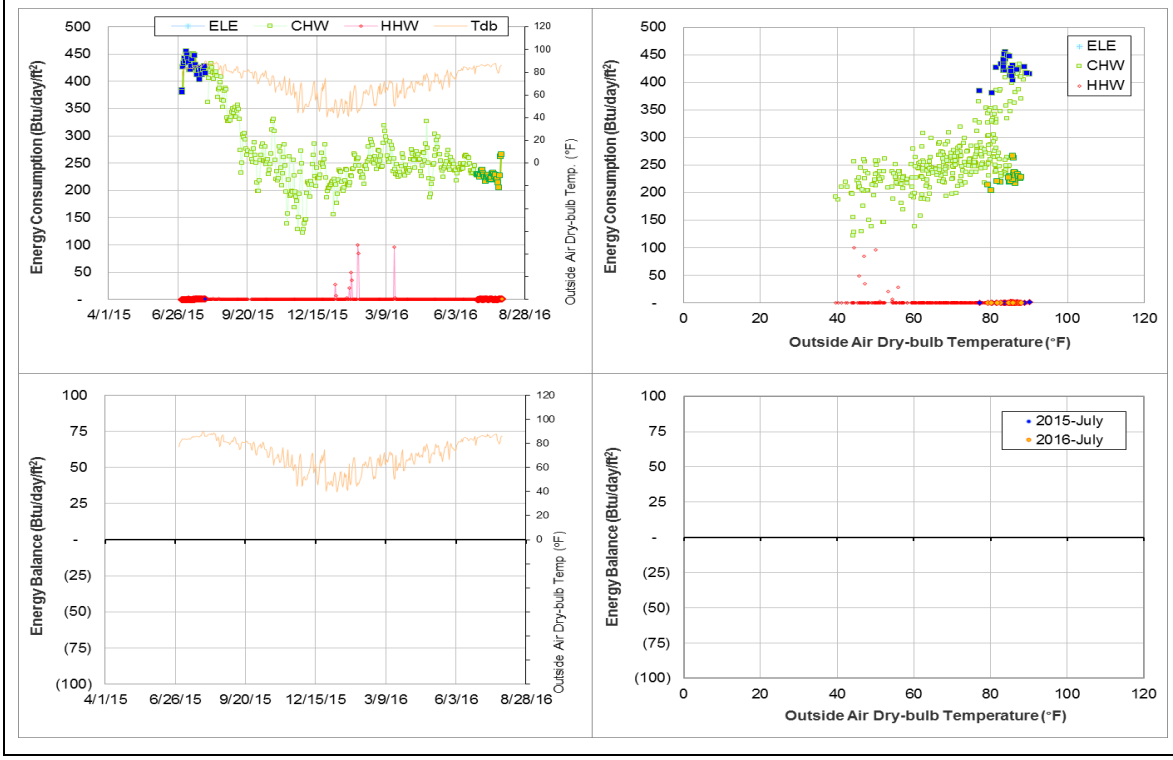
TVMC-Small Animal Building (TAMU Bldg# 880)

Data Type	Description of data behaviors	Period
HHW	The daily consumption is zero or nearly zero for the majority of the days during the year.	Since the data became available in October 2008

Comments

The daily HHW consumption pattern is zero or nearly zero for the majority of the days for years. Because the HHW consumption level appears unstable since the data became available, a valid consumption model for this meter has not been created.

Explanatory Figure: 13 months energy balance plot with original data



Veterinary Medicine Administration (TAMU Bldg# 1026)

Detected issues in the energy balance and/or the consumption data

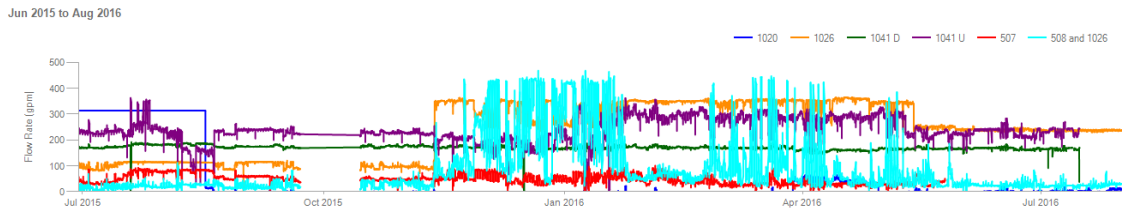
Data Type	Description of data behaviors	Period
HHW 006053	The sub-meter's (006053) flow rate for one building sometimes is higher than the total meter (004170) for two buildings.	For several years

Comments

The HHW meter ID 006053 is a sub-meter of the meter ID 004170 which meters the total energy use in the buildings #508 and 1026. It is questionable that the flow rate of the sub-meter exceeds the flow rate of the main meter. We would like to know the HHW distribution route for the two buildings and the locations of the sensors.

ESL has not received the consumption data for the HHW meter since 10/21/2012.

Explanatory Figure: Time series of hourly HHW flow rates for Veterinary Medicine Administration (Bldg #1026) and neighboring buildings during 6/1/2015–8/1/2016. The combined HHW metered for Bldg #1026 and #508 (light blue) is lower than the standalone HHW meter for only Bldg #1026 (dark blue).



Biological Control Facility (TAMU Bldg# 1146)

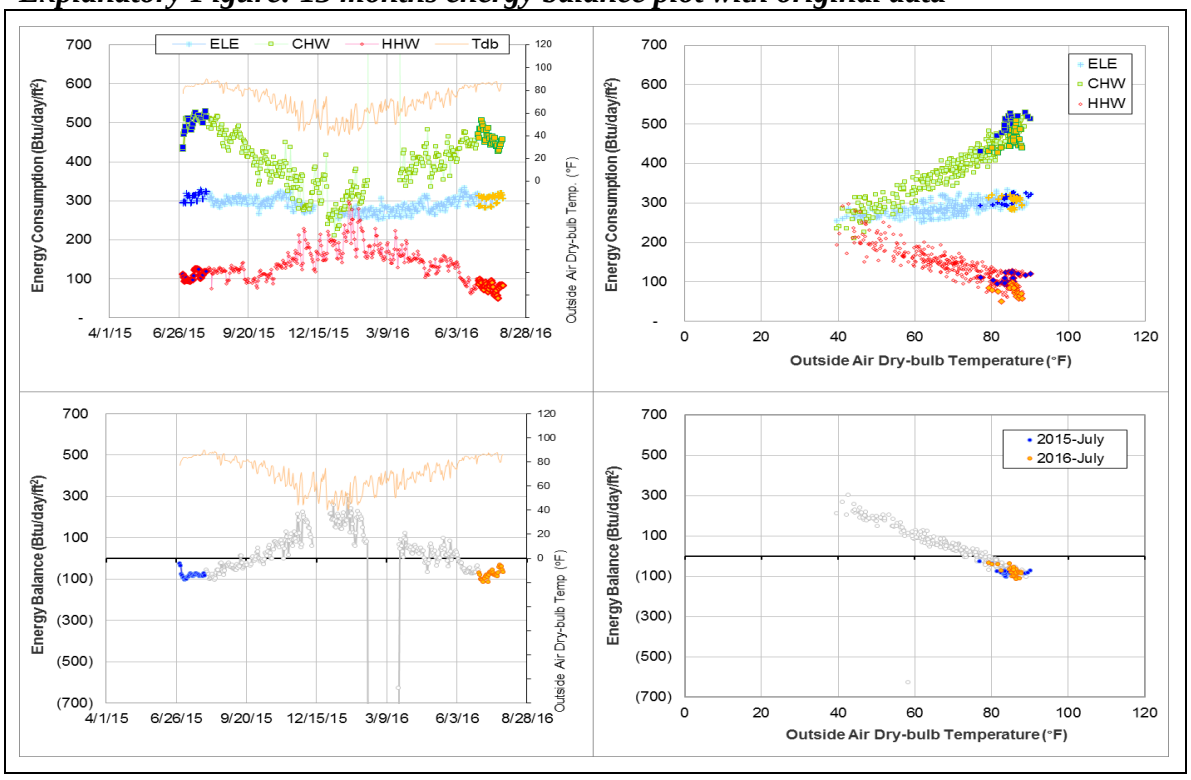
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
Energy Balance	The cross-point temperature is slightly high, ~75°F.	12/28/2014-ongoing
ELE	The consumption increased gradually.	For several years

Comments

The electricity consumption increased gradually over several years. As a result, the energy balance pattern changed and the cross-point temperature shifted slightly higher from approximately 70°F to 75°F.

Explanatory Figure: 13 months energy balance plot with original data



Physical Plant Administration & Shops (TAMU Bldg# 1156)

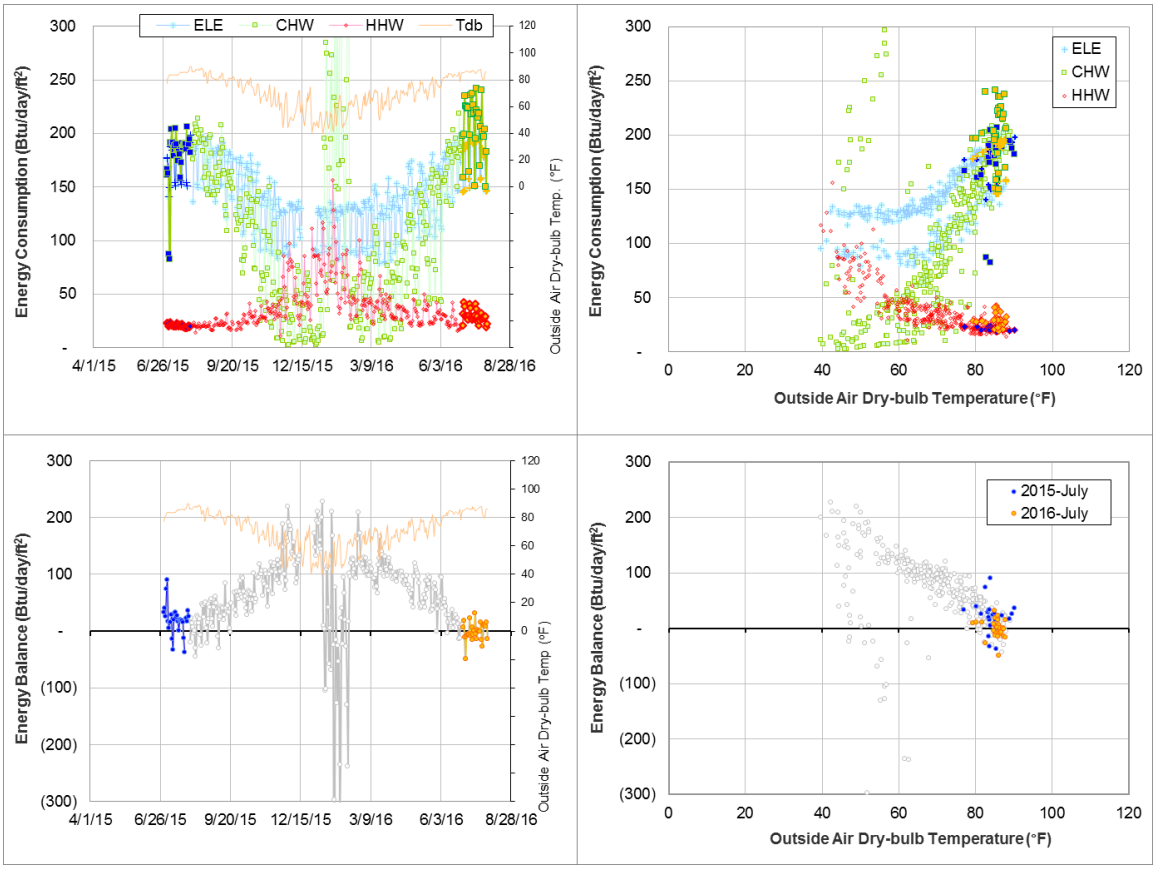
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
Energy Balance	The cross-point temperature is high, ~85˚F.	7/1/2014-ongoing
CHW	The consumption level might be low compared to the ELE and HHW use level.	Since the data became available on 7/1/2012.

Comments

The electricity is not available until 7/1/2014. CHW consumption level might be low compared to the ELE and HHW use level. But the CHW consumption level has been stable since the data became available on 7/1/2012. More information might be needed to help identify which type energy causes the high cross-point temperature.

Explanatory Figure: 13 months energy balance plot with original data



Veterinary Anatomic Pathology (TAMU Bldg #1184)

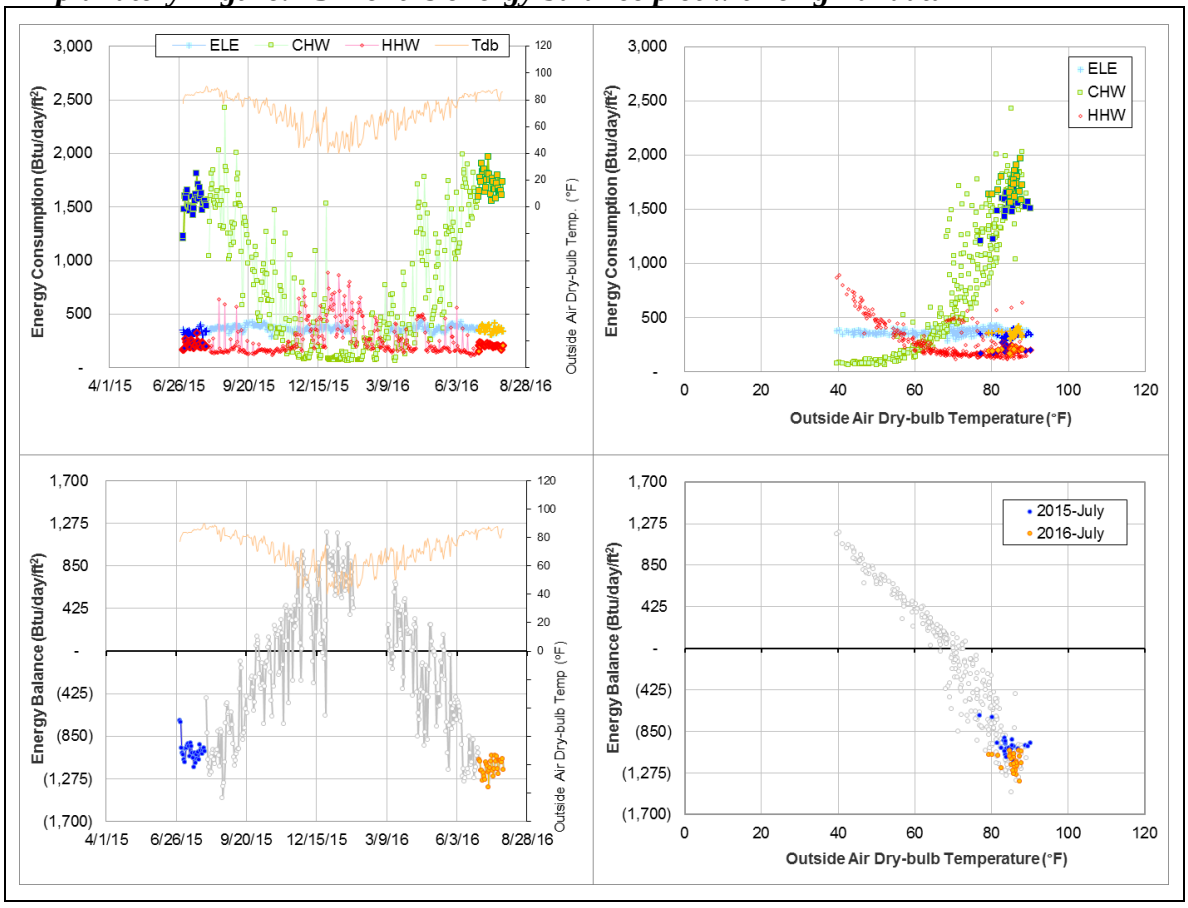
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption level spikes on the weekends.	Past several months

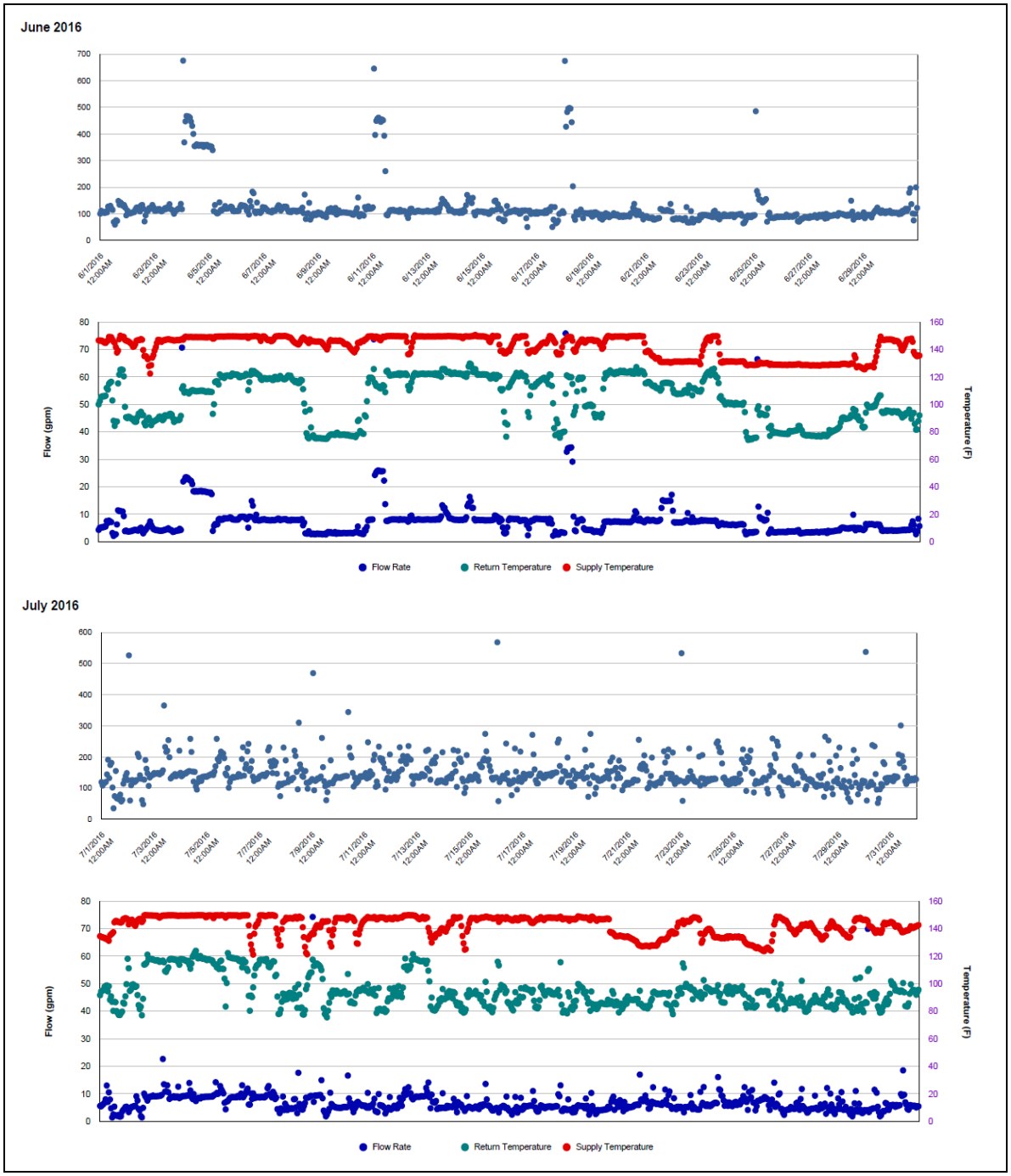
Quantitative descriptions and comments

The HHW consumption appears to spike on the weekends around four times higher than that of the weekday level.

Explanatory Figure: 13 months energy balance plot with original data



Explanatory Figure: Time series plots of hourly HHW energy consumption, flow rate, and supply and return temperatures from the utilities office. Note the increased consumption happens during the weekends. (top: June 2016, bottom: July 2016)



Veterinary Research Building (TAMU Bldg# 1197)

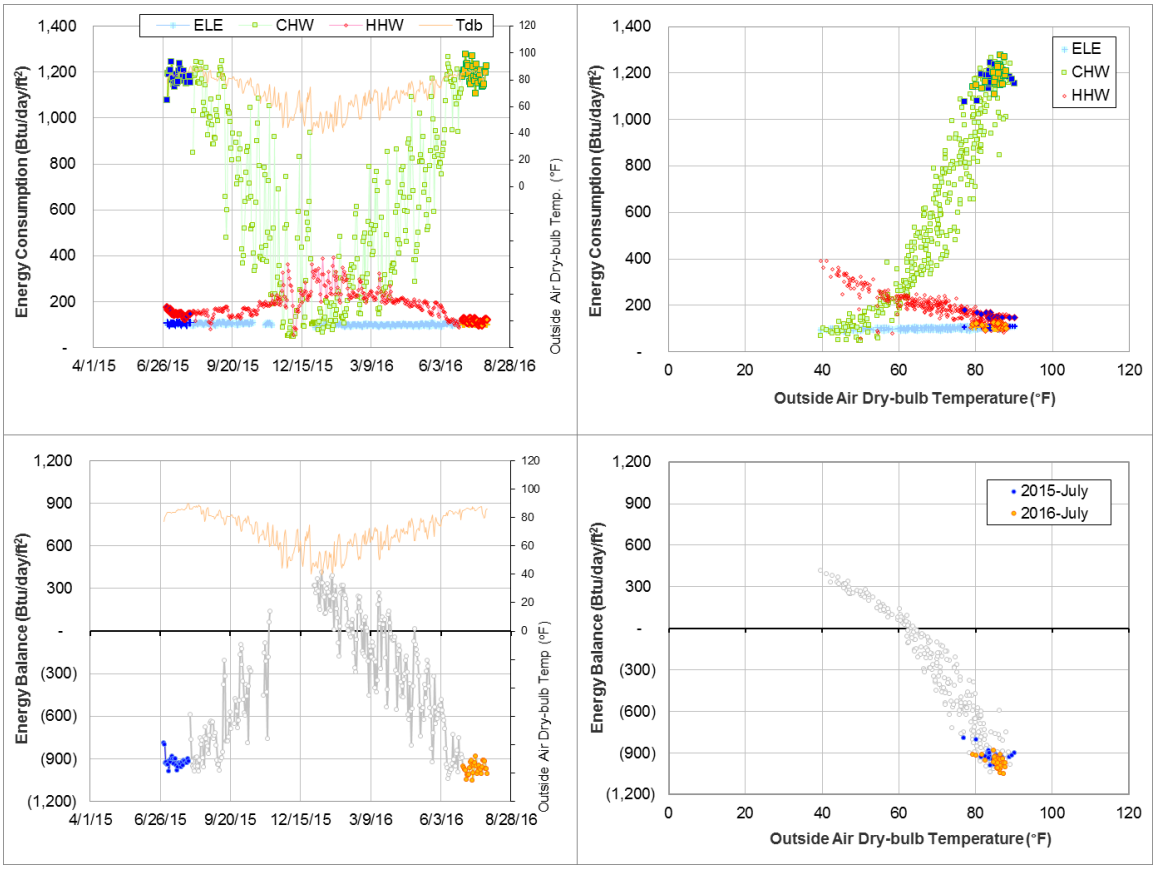
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	The consumption is low for a laboratory building.	Since January 2010 when the meter was added to this report

Comments

The whole building hourly electricity use is in the range 130 kWh to 180 kWh (1.13 W/ft^2 to 1.57 W/ft^2), which is low for a veterinary laboratory building on the campus. This seems to be the reason for the low level of the energy balance load. The temperature-axis intercept of the energy balance is around 62°F.

Explanatory Figure: 13 months energy balance plot with original data



Kleberg Center (TAMU Bldg #1501)

Detected issues in the energy balance and/or the consumption data

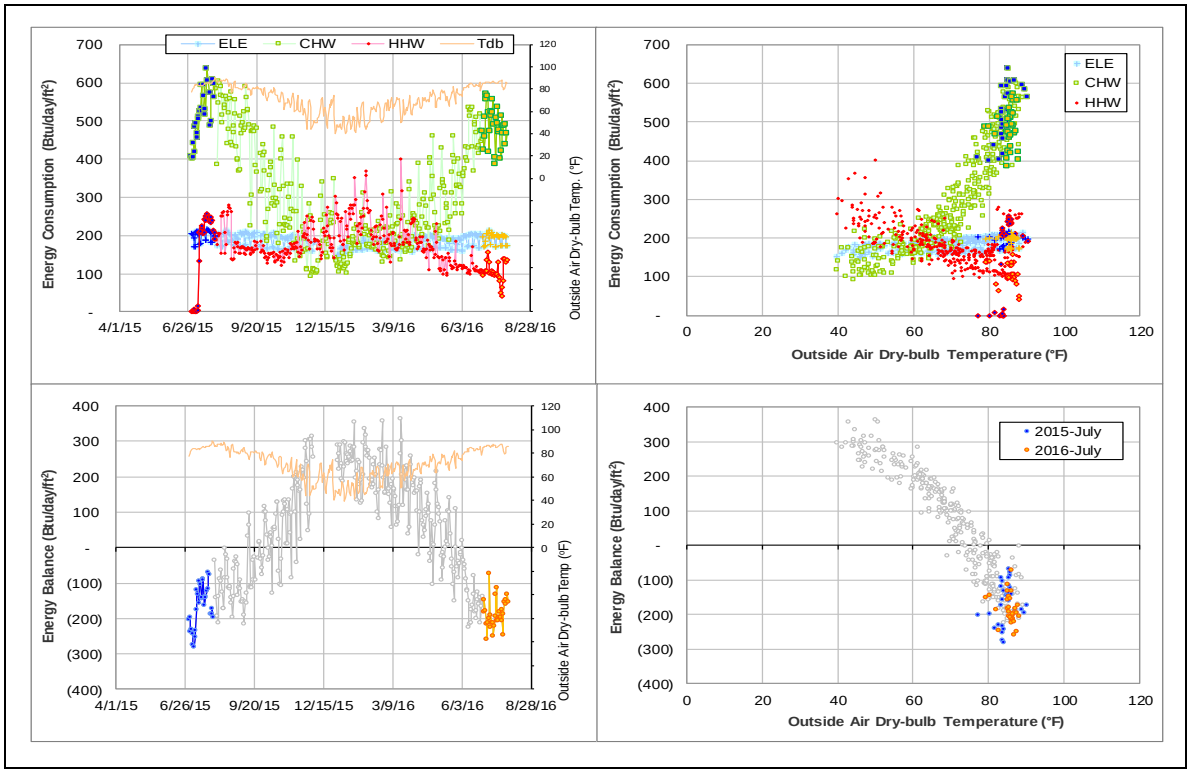
Data Type	Description of data behaviors	Period
CHW	The return temperatures is high. Delta-T is bigger than that for similar buildings in campus.	Since we started to analysis this building in 2006.

Comments

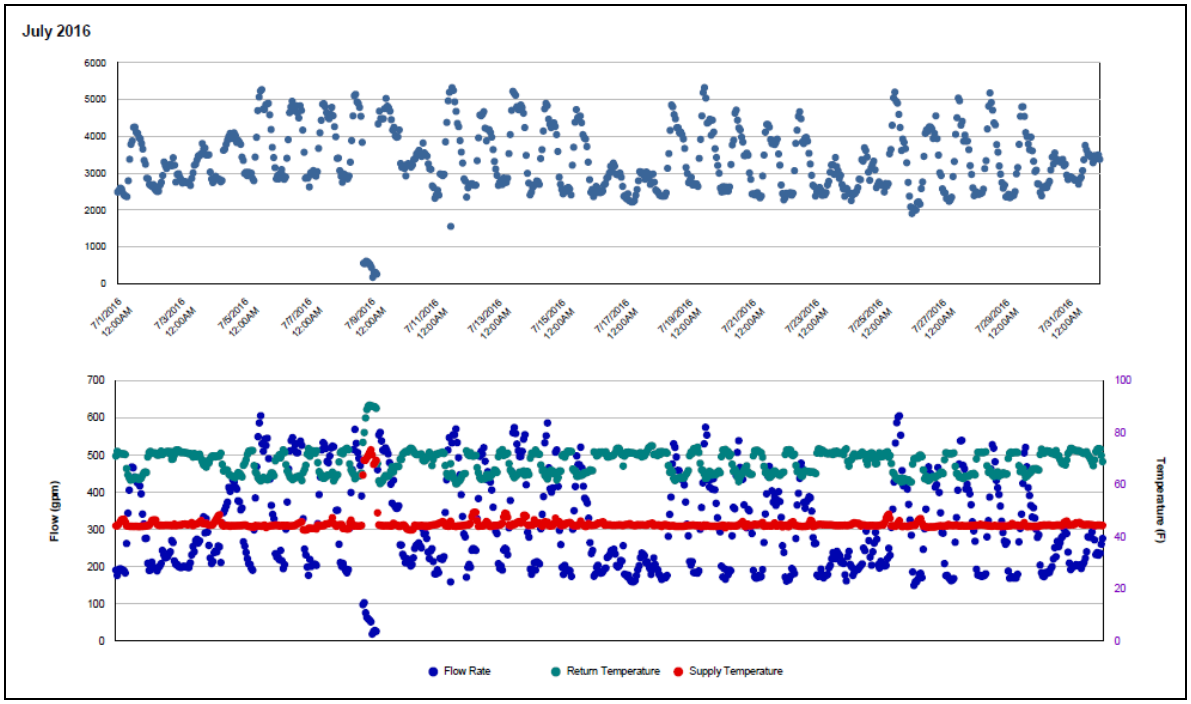
The return temperature for CHW meter was high, about 60 - 70°F for years. The return temperature increased further on 11/13/2014 and it reached 80°F sometimes. Delta-T for this building (25 - 35°F) is much bigger than that for similar buildings in campus.

The ESCO period for this building is 5/1/2011-1/1/2012. The CHW consumption level has been stable for over three years after ESCO period.

Explanatory Figure: 13 months energy balance plot with original data



Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (CHW during July 2016)



West Campus Parking Garage (TAMU Bldg #1559)

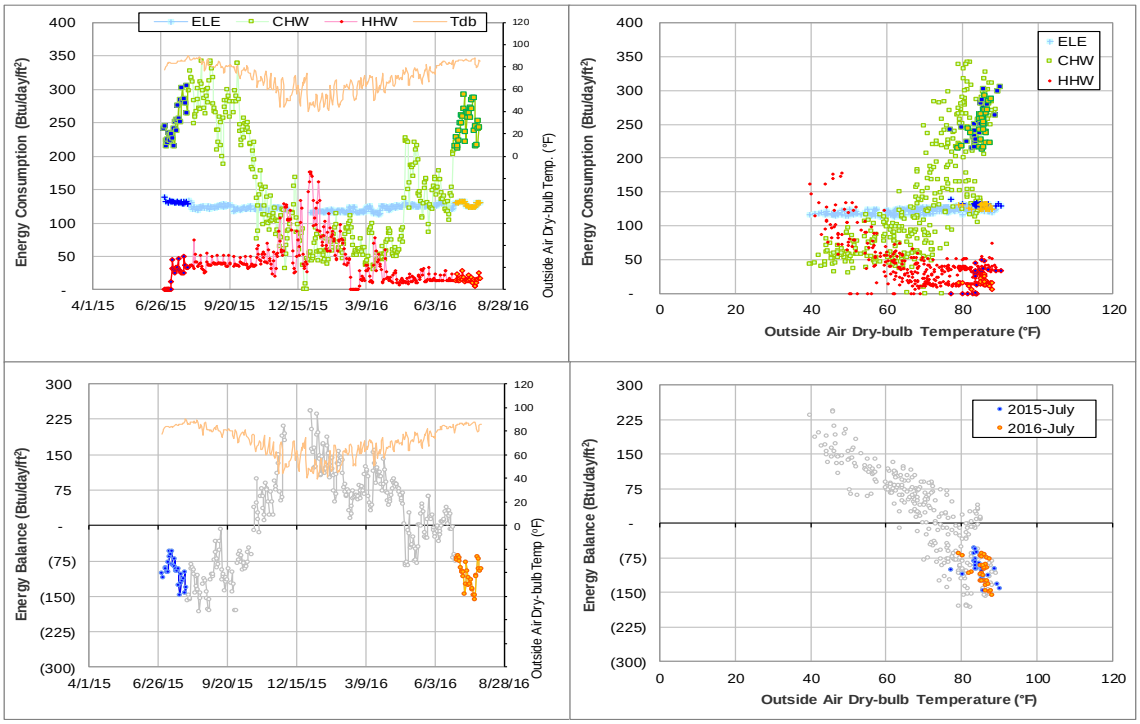
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption level decreased largely. The scattering data was observed.	October 2013 - ongoing
	The consumption level increased. The scattering data was observed.	5/28/2015 - ongoing

Comments

The CHW consumption level decreased from 800 Btu/day/ft^2 to 100 Btu/day/ft^2 since October 2013 mainly caused by a decrease in the flow rate. The consumption pattern was very scattering and the cross-point temperature is high, 75-85˚F, after this decrease. The CHW consumption increased at the end of May 2015 which causing the cross-point shift to more reasonable range. We need more data to verify this trend. But the consumption pattern is still very scattering.

Explanatory Figure: 13 months energy balance plot with original data



International Ocean Discovery Building (TAMU Bldg #1601)

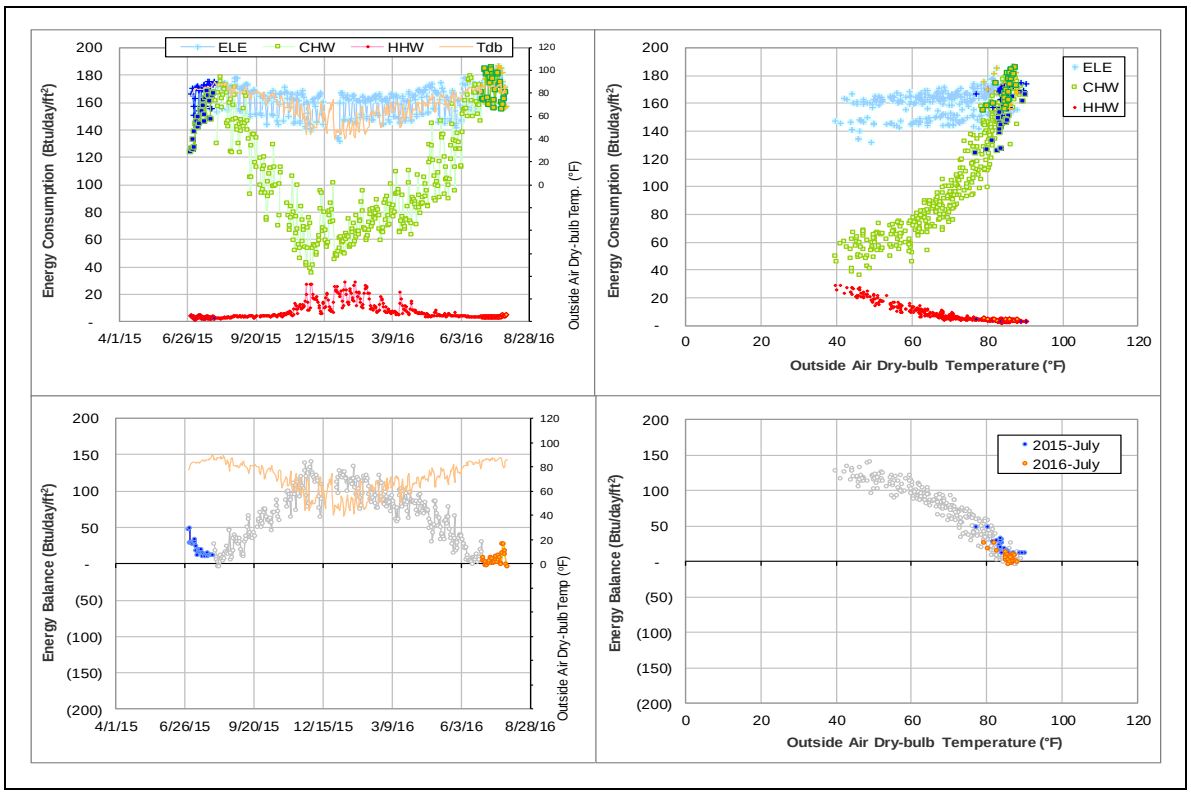
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
Energy Balance	The cross-point is high, around 85°F.	Since data became available in Feb 2015

Comments

The cross-point temperature is high for this building, around 85°F. The daily CHW consumption for last year is 40 – 180 Btu/day/ft^2. The CHW consumption level is low compared to ELE and HHW levels. This building might have its chillers.

Explanatory Figure: 13 months energy balance plot with original data



Offshore Technology Research Center (TAMU Bldg #1604)

Detected issues in the energy balance and/or the consumption data

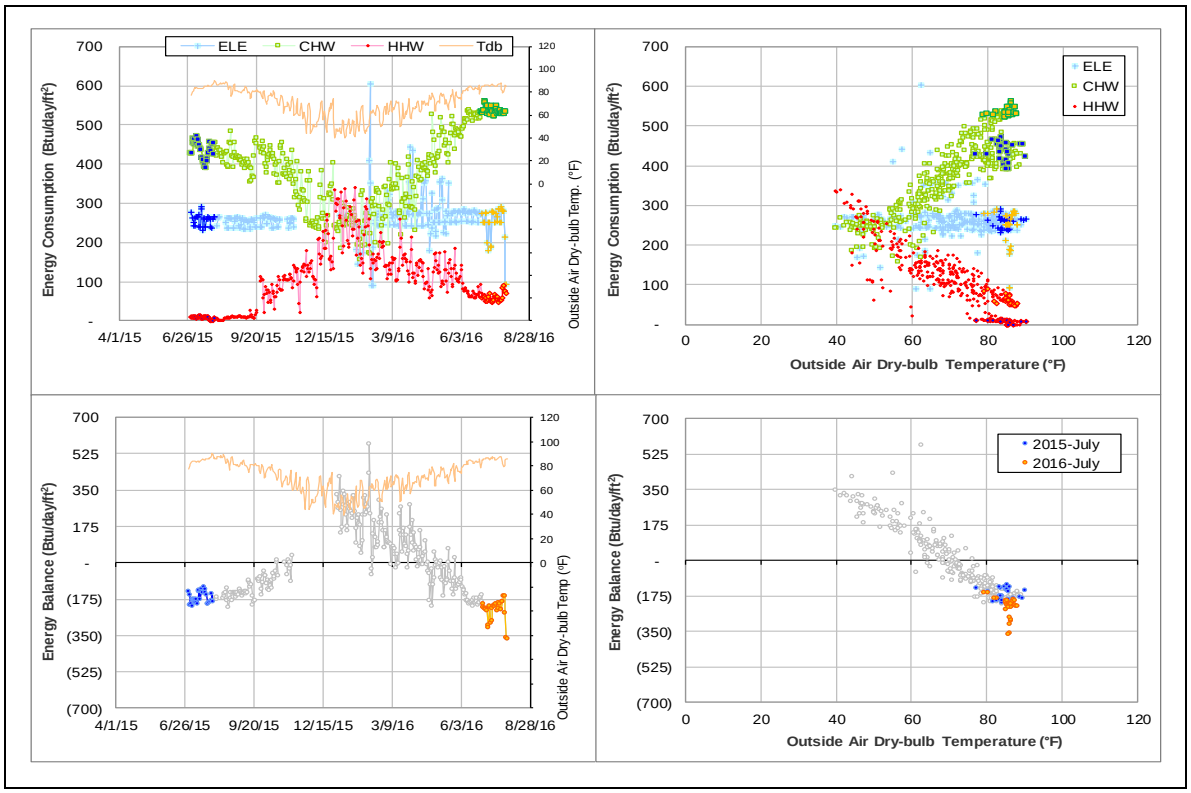
Data Type	Description of data behaviors	Period
ELE (006660)	The daily consumption was recorded as zero for the majority of the days.	Since data became available in Feb 2015
CHW and HHW	The consumption level is higher than that of last year.	5/1/2016-ongoing

Comments

Both CHW and HHW consumption level is higher than that of last year in this month.

There are two ELE meters (006659 and 006660). The daily consumption for MeterID 006660 was recorded as zero for the majority of the days since data became available in February 2015. The daily consumption for several days in recent several months increased largely and caused scattering energy balance.

Explanatory Figure: 13 months energy balance plot with original data



III. Time Series Plots for July 2016 Consumption

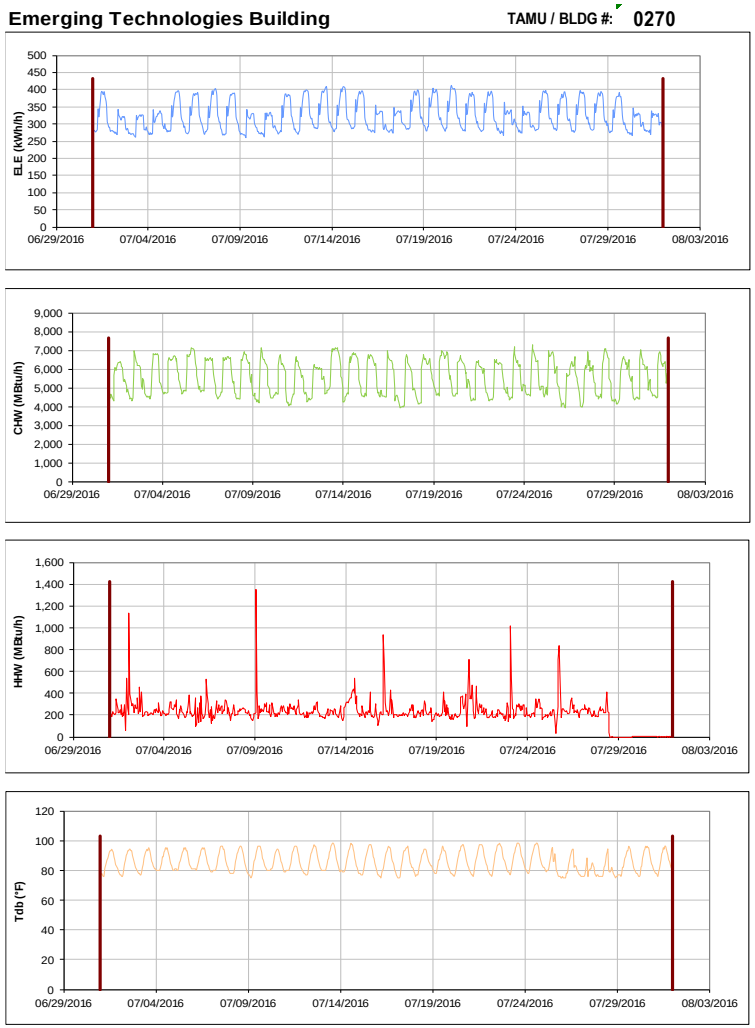


Figure III-1 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Emerging Technologies Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

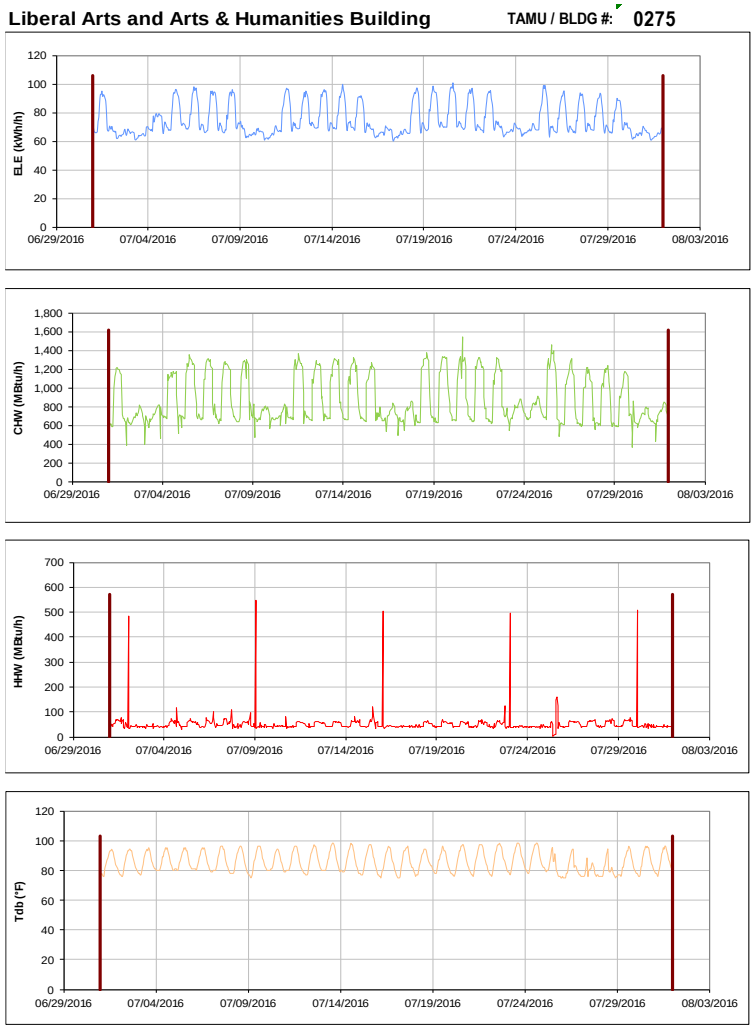


Figure III-2 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Liberal Arts and Arts & Humanities Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

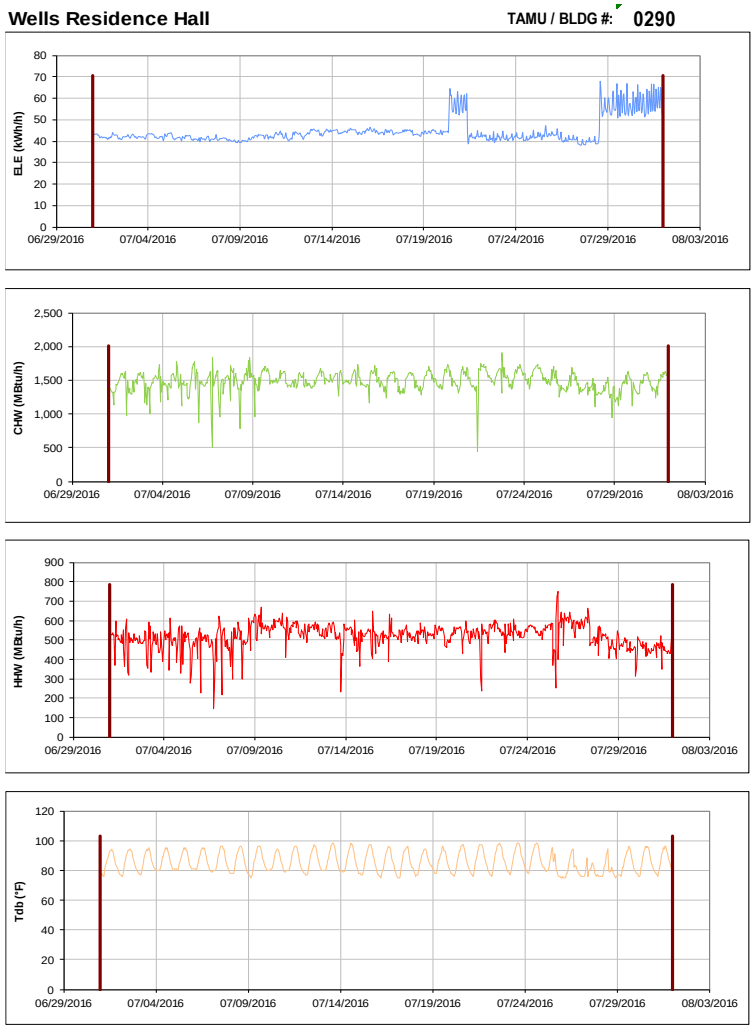


Figure III-3 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Wells Residence Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

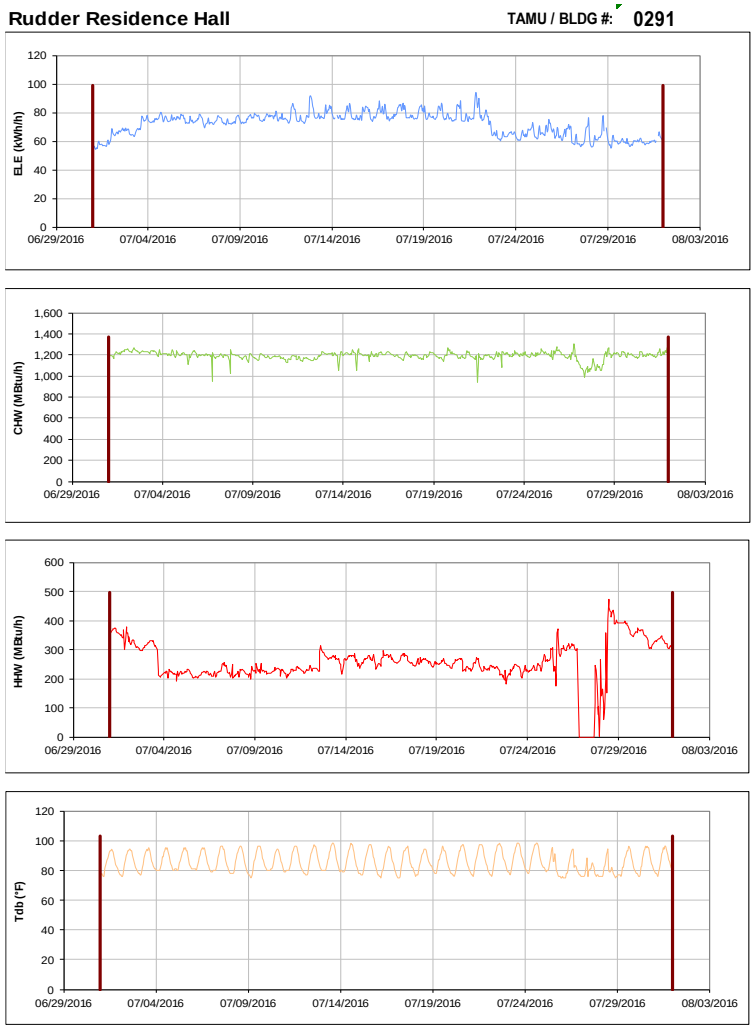


Figure III-4 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rudder Residence Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

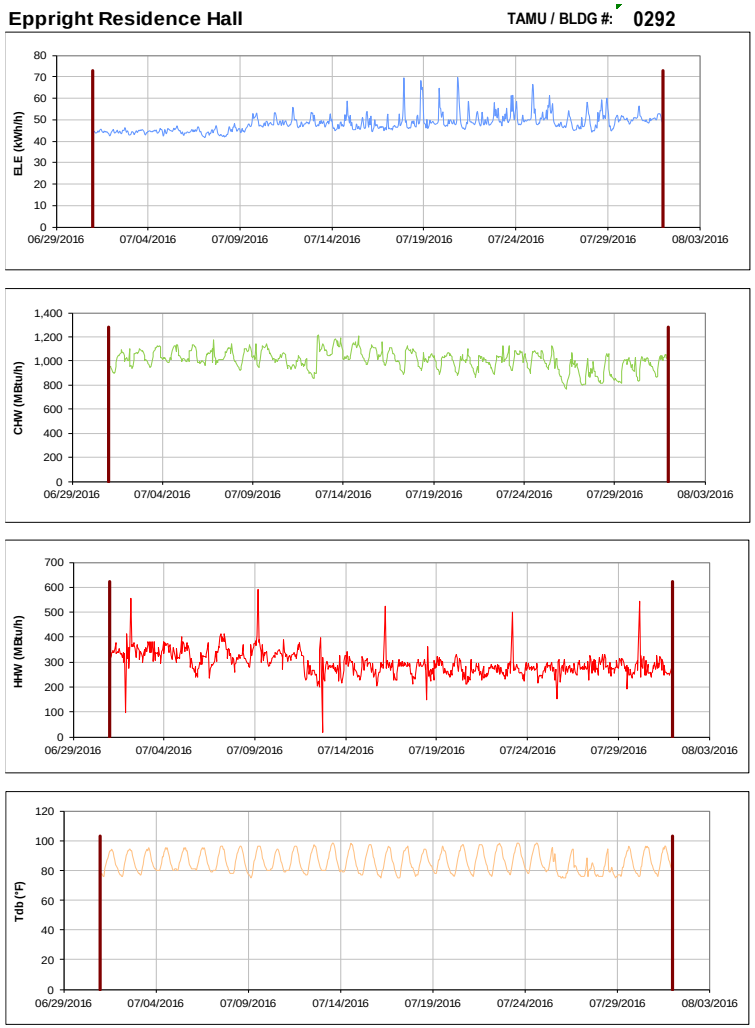


Figure III-5 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Eppright Residence Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

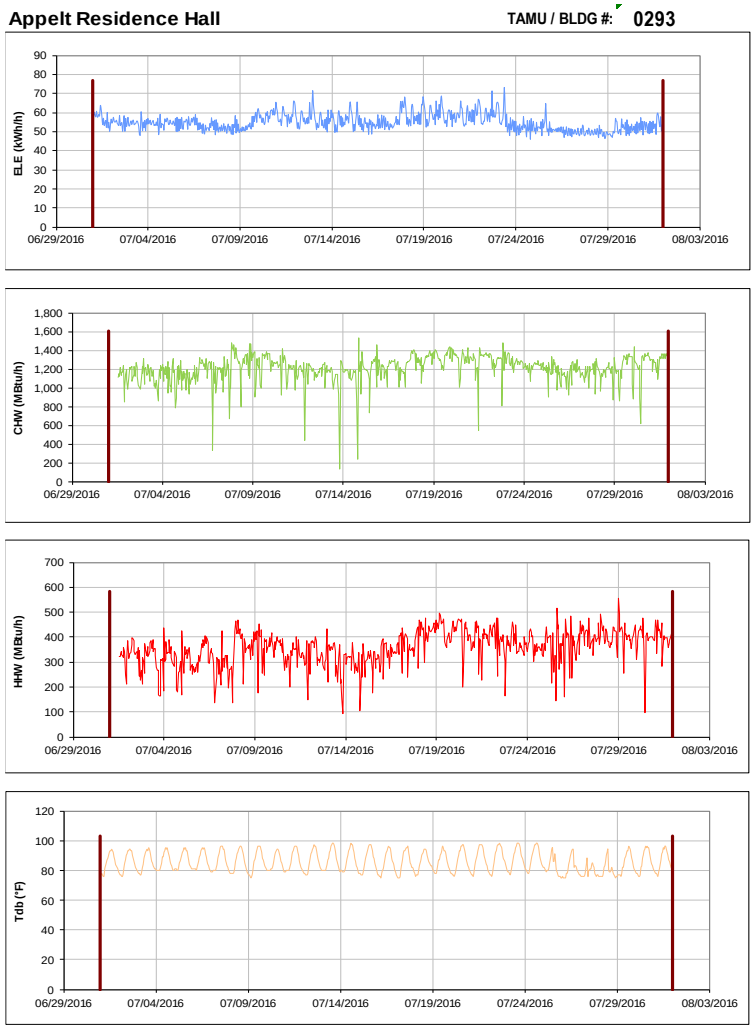


Figure III-6 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Appelt Residence Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

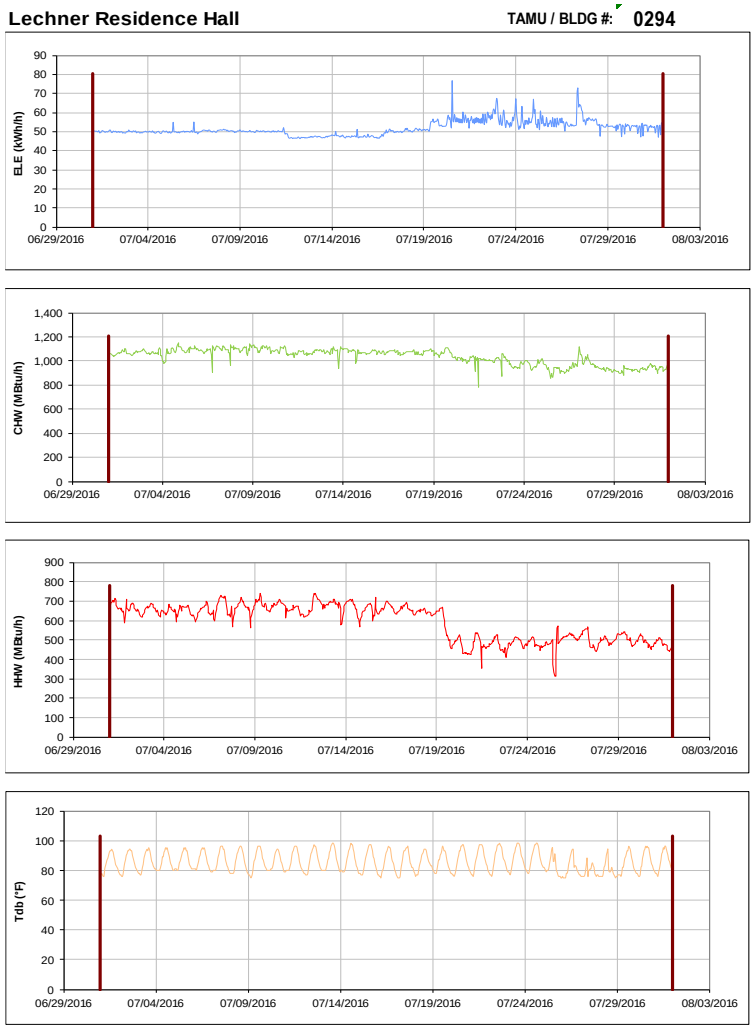


Figure III-7 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Lechner Residence Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

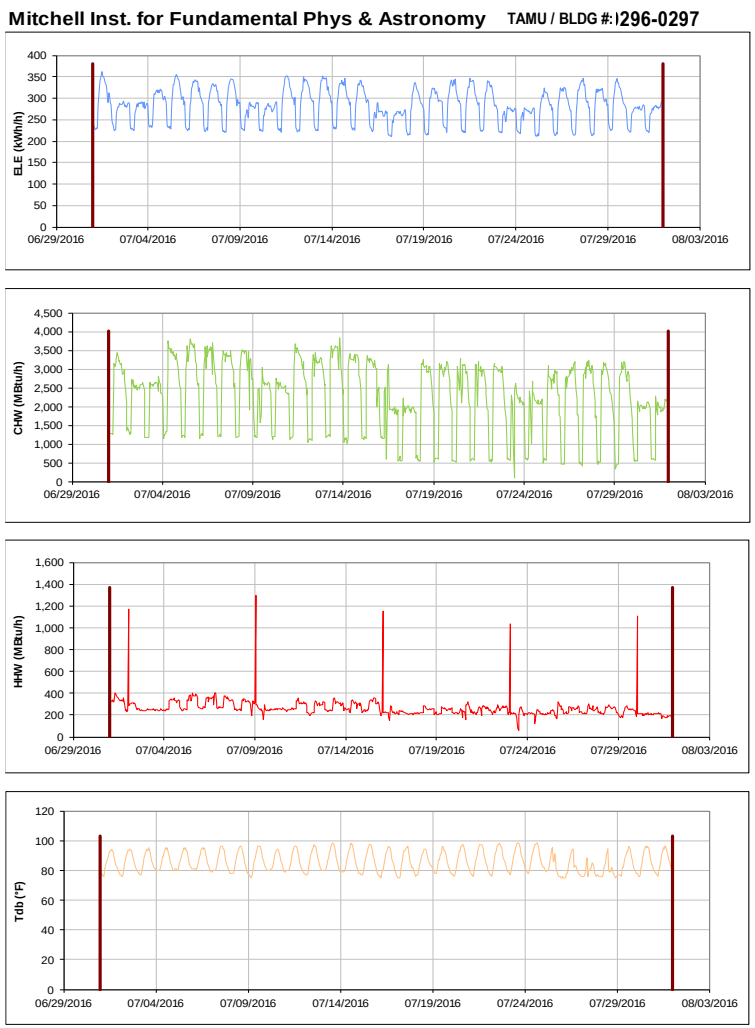


Figure III-8 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Mitchell Inst. for Fundamental Phys & Astronomy during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

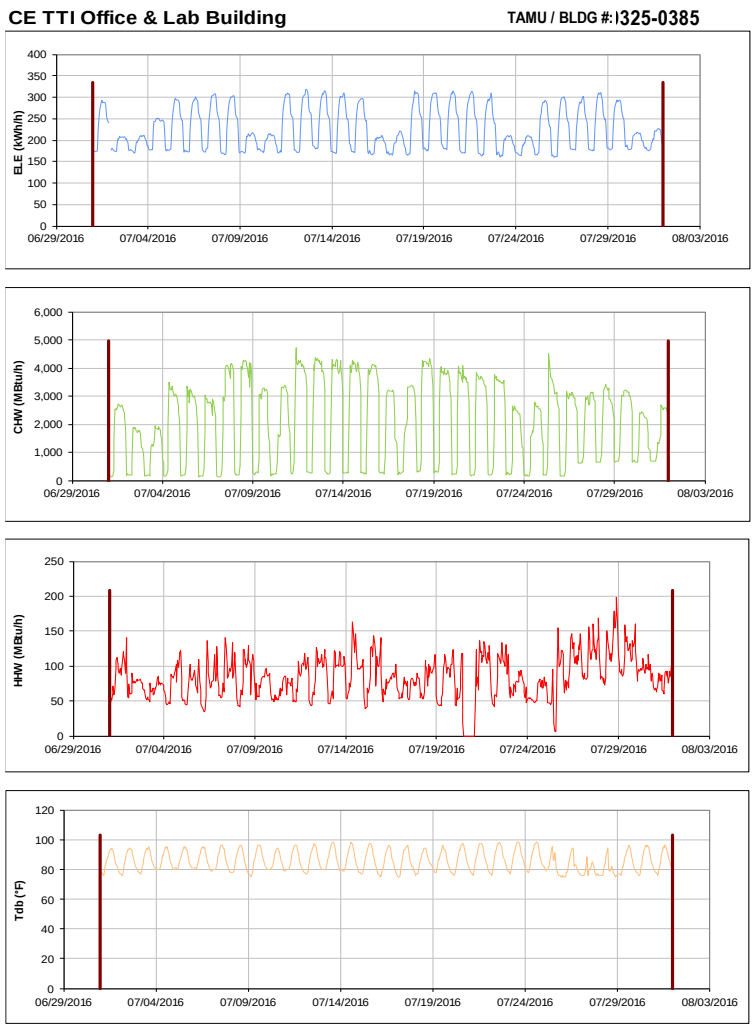


Figure III-9 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for CE TTI Office & Lab Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-10 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Bright Aerospace Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

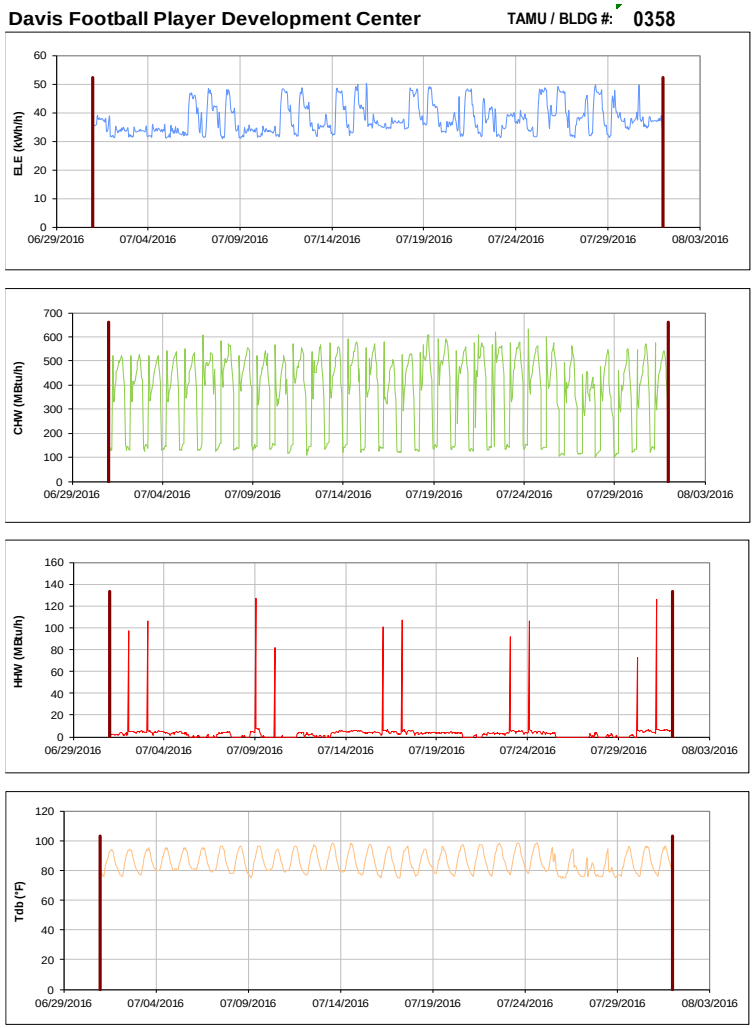


Figure III-11 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Davis Football Player Development Center during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

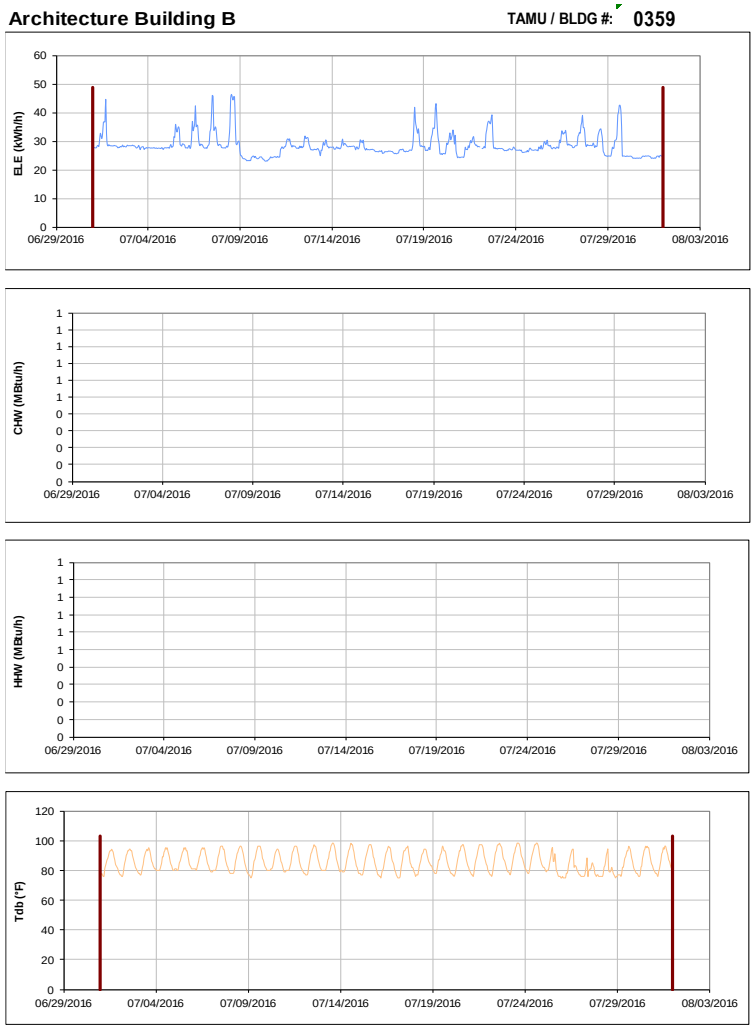


Figure III-12 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Architecture Building B during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

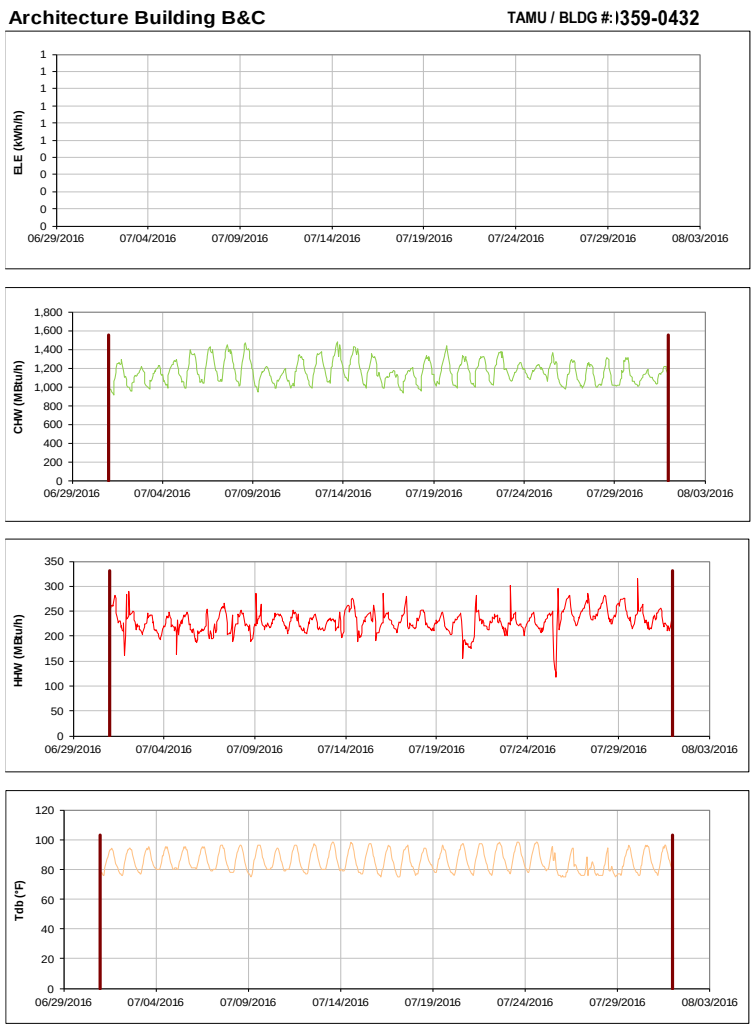


Figure III-13 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Architecture Building B&C during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-14 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Bright Football Complex during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

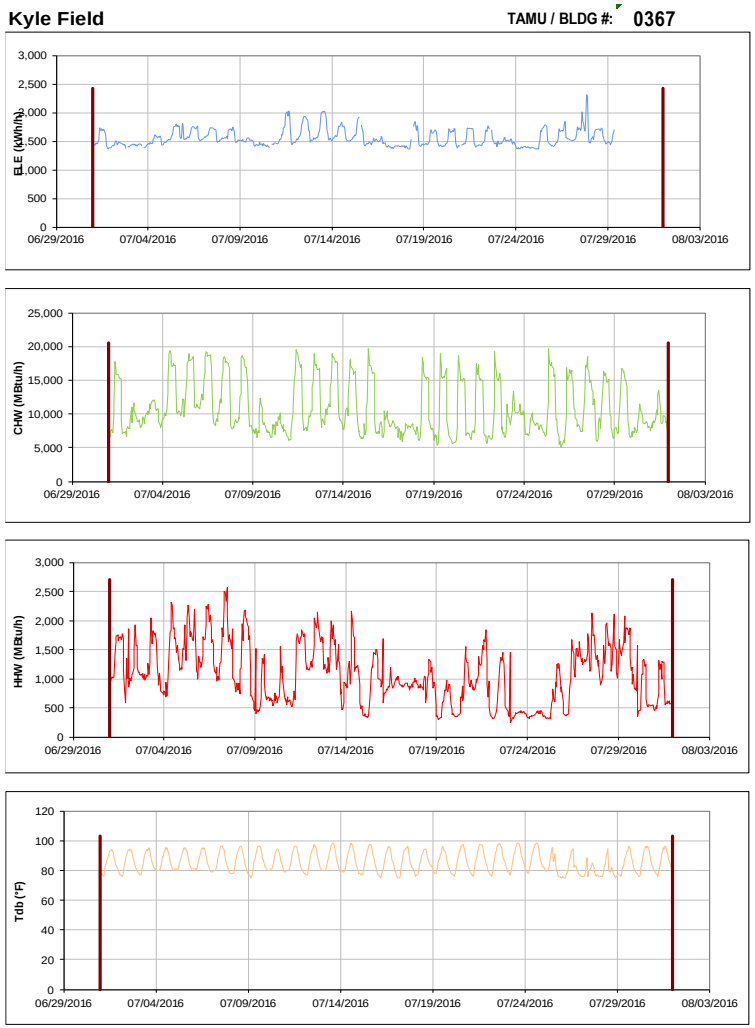


Figure III-15 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Kyle Field during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

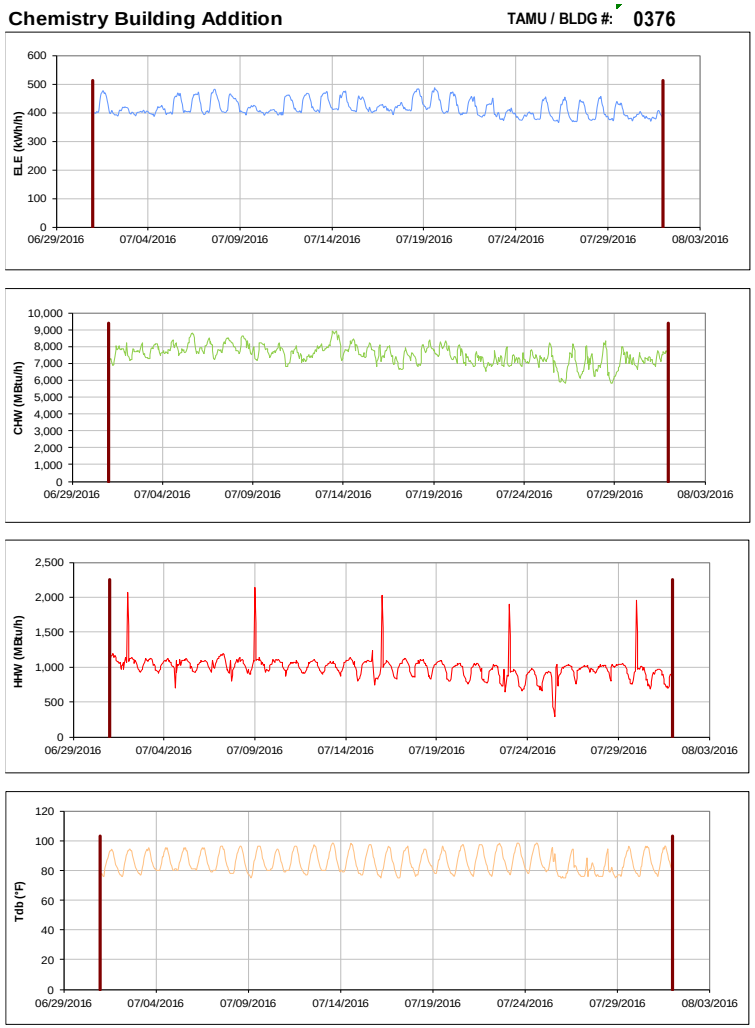


Figure III-16 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Chemistry Building Addition during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

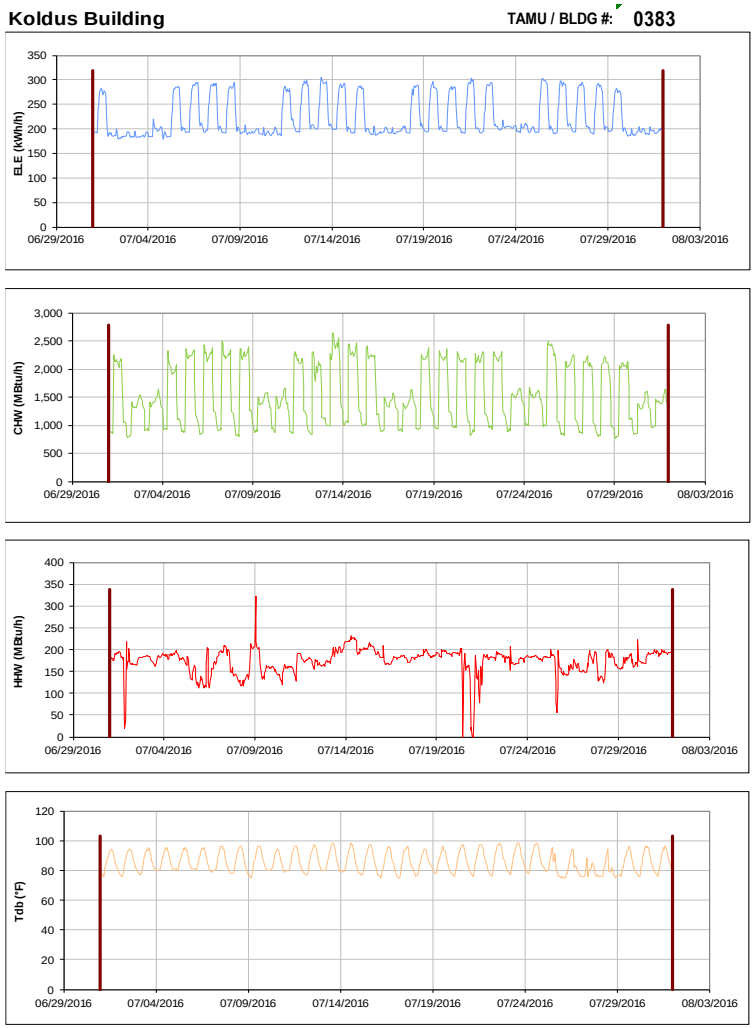


Figure III-17 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Koldus Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

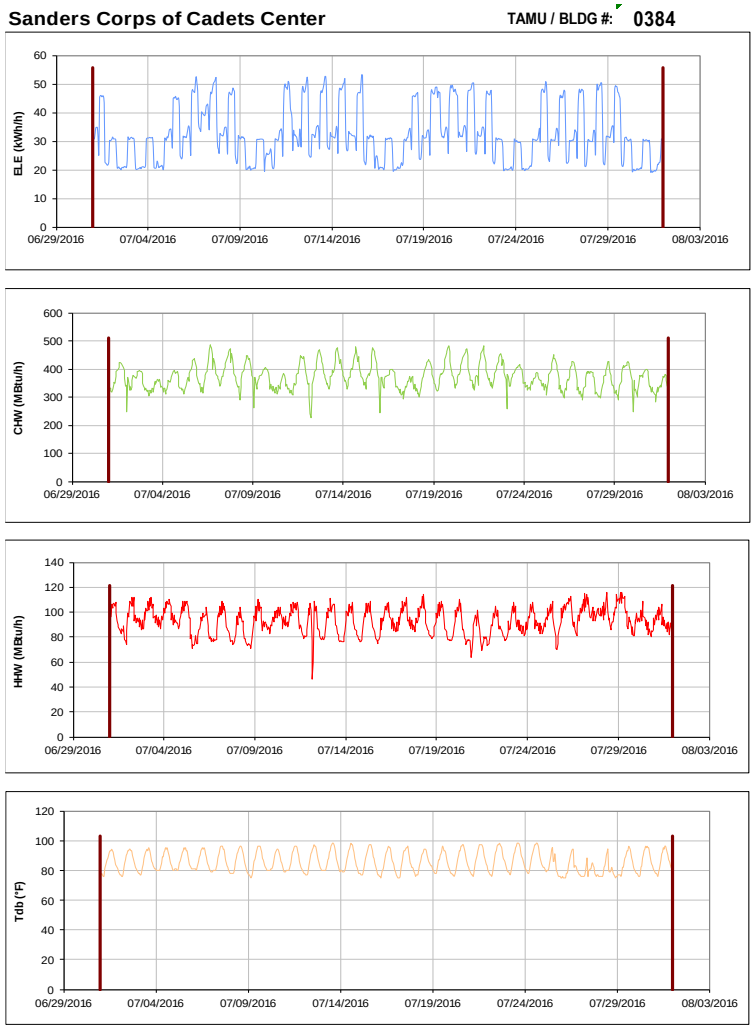


Figure III-18 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Sanders Corps of Cadets Center during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

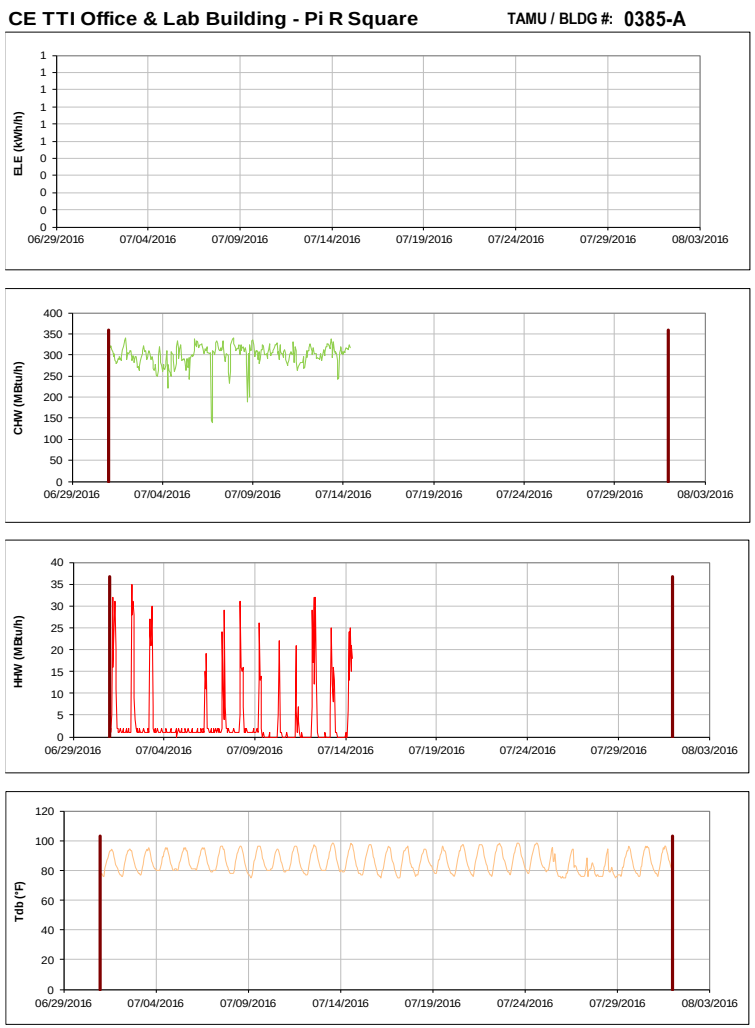


Figure III-19 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for CE TTI Office & Lab Building - Pi R Square during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

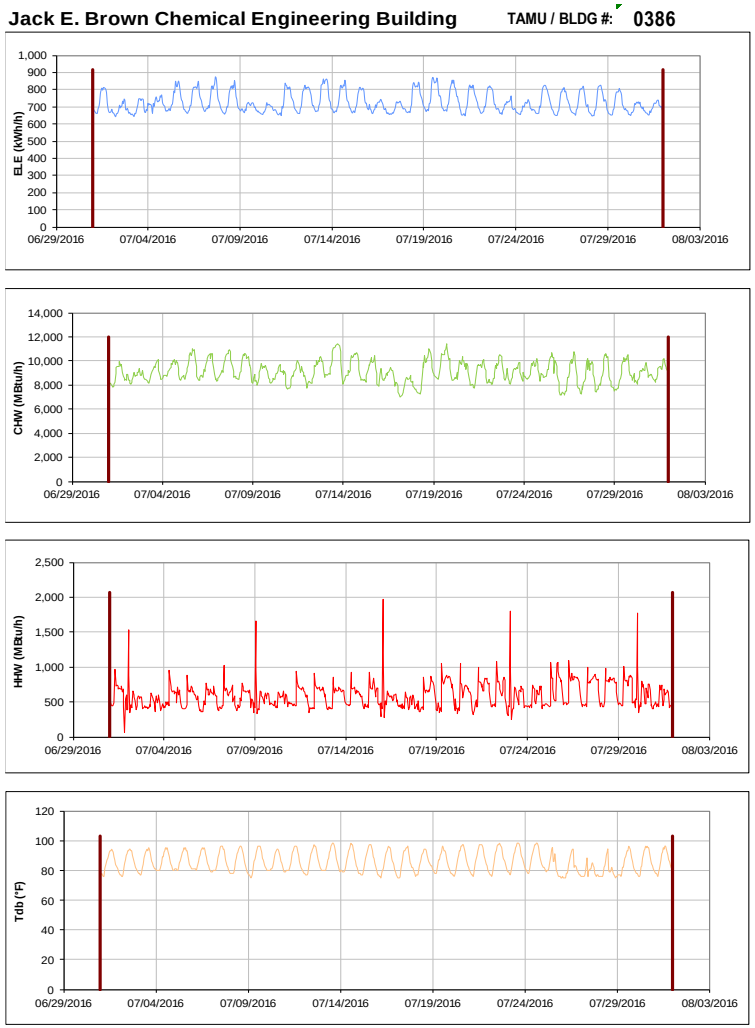


Figure III-20 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Jack E. Brown Chemical Engineering Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

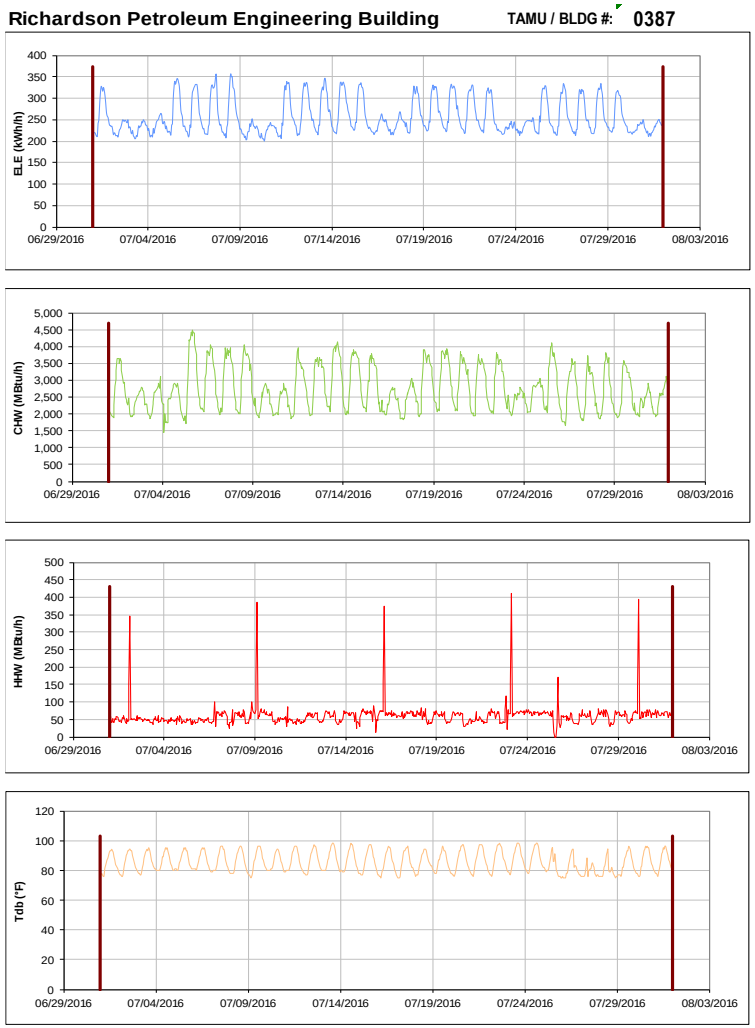


Figure III-21 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Richardson Petroleum Engineering Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

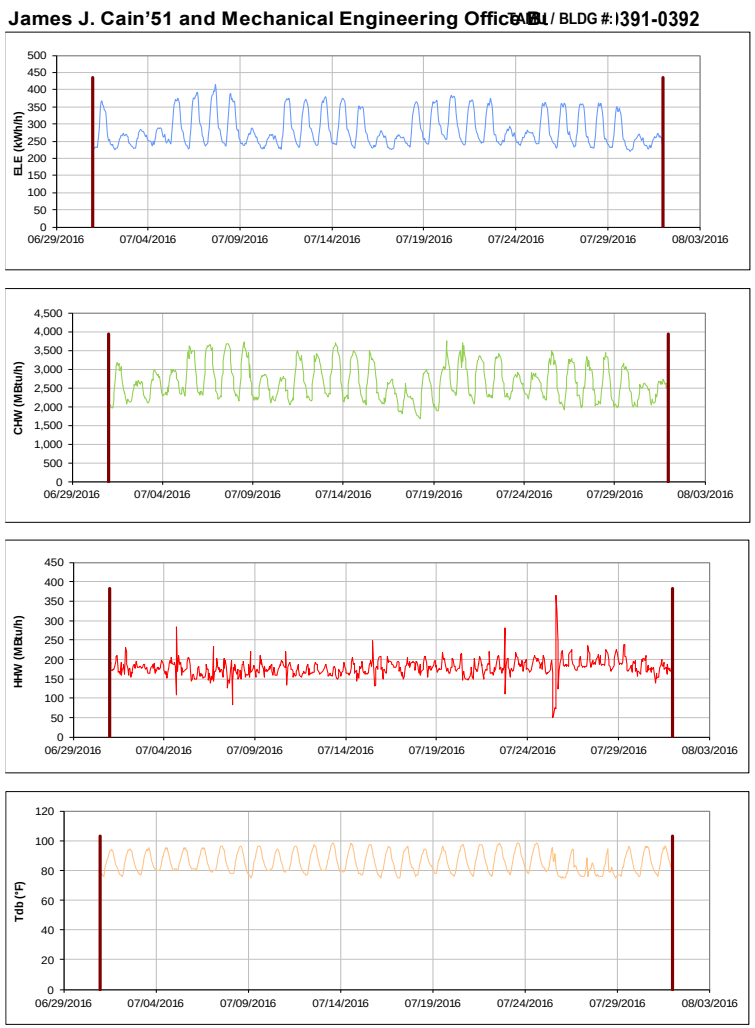


Figure III-22 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for James J. Cain'51 and Mechanical Engineering Office Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

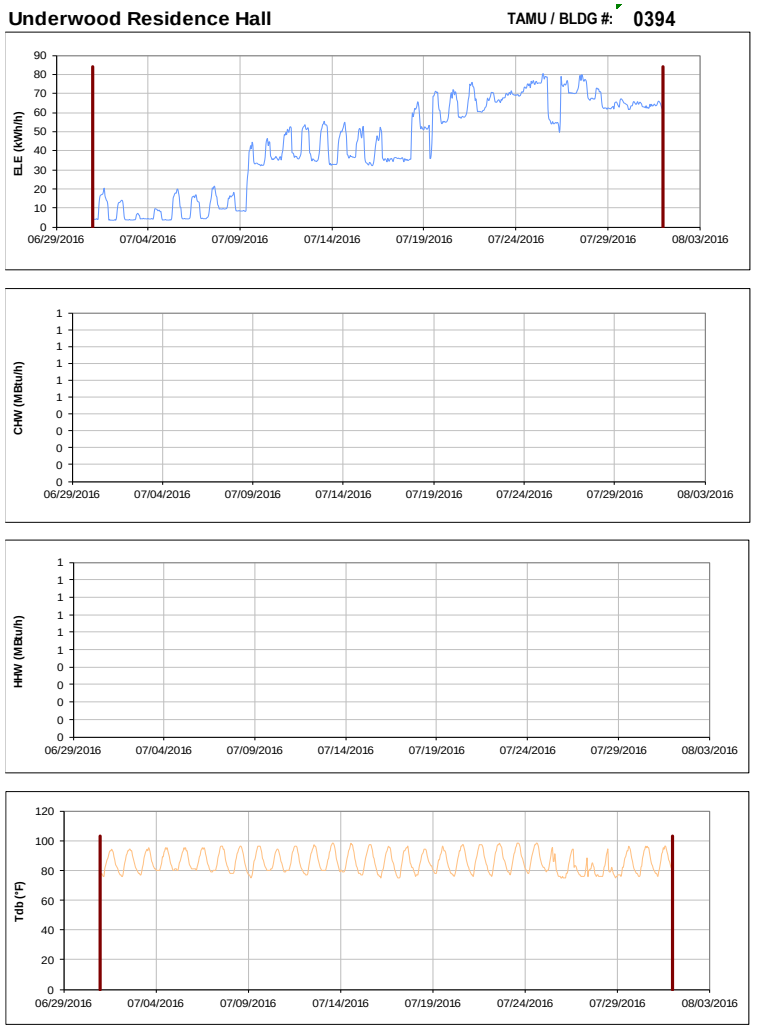


Figure III-23 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Underwood Residence Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

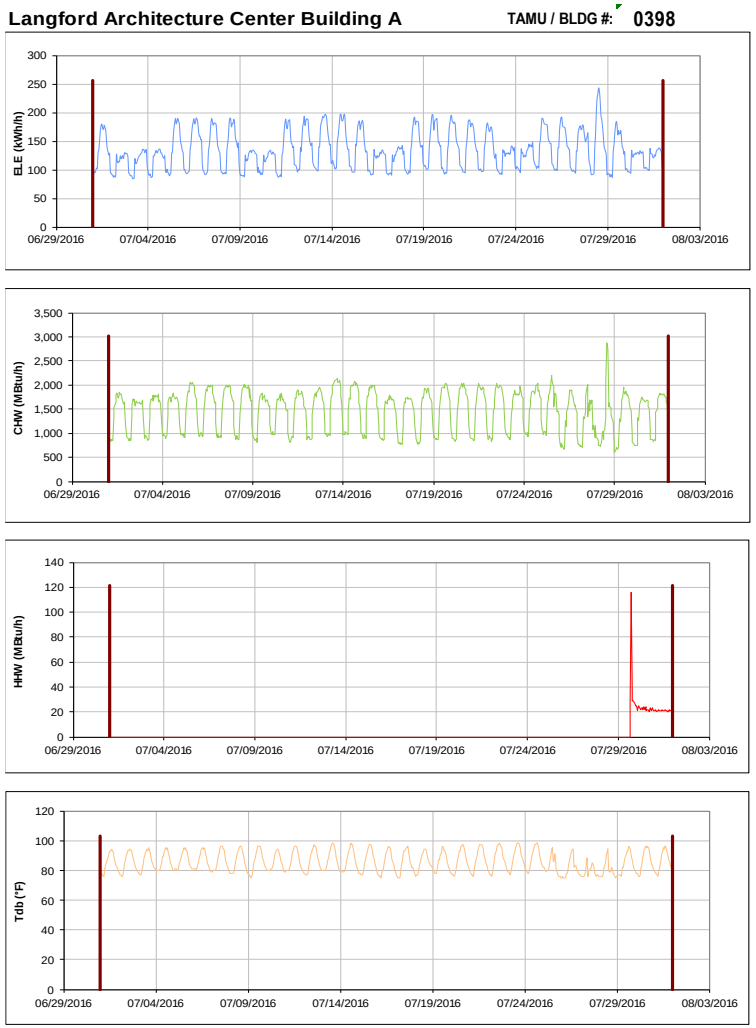


Figure III-24 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Langford Architecture Center Building A during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

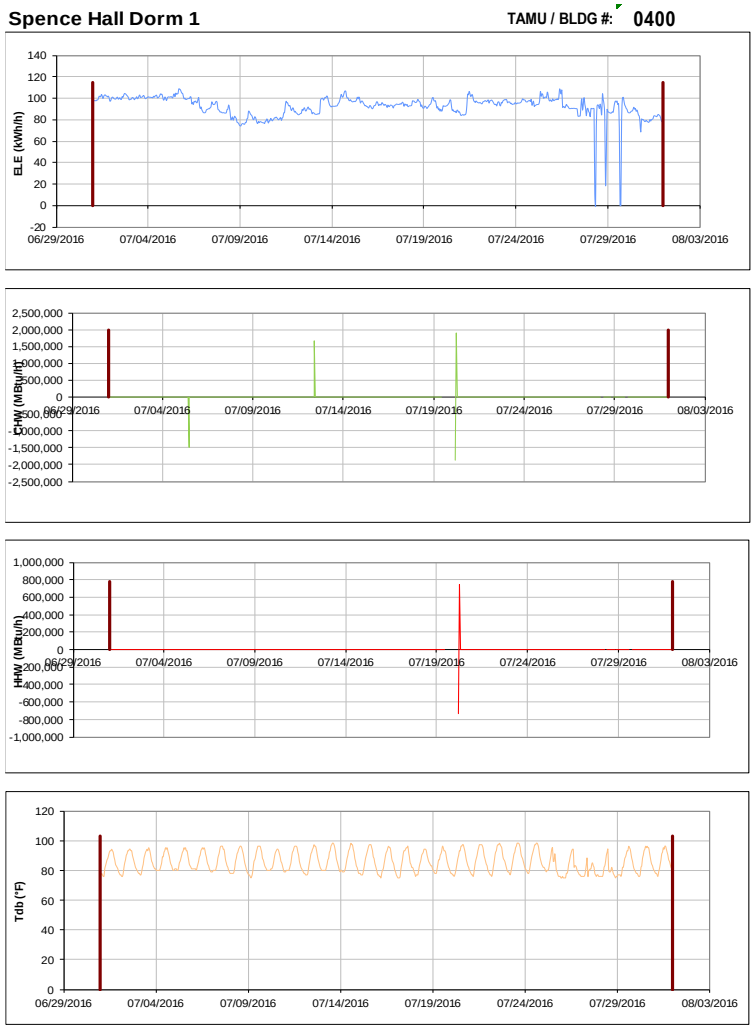


Figure III-25 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Spence Hall Dorm 1 during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

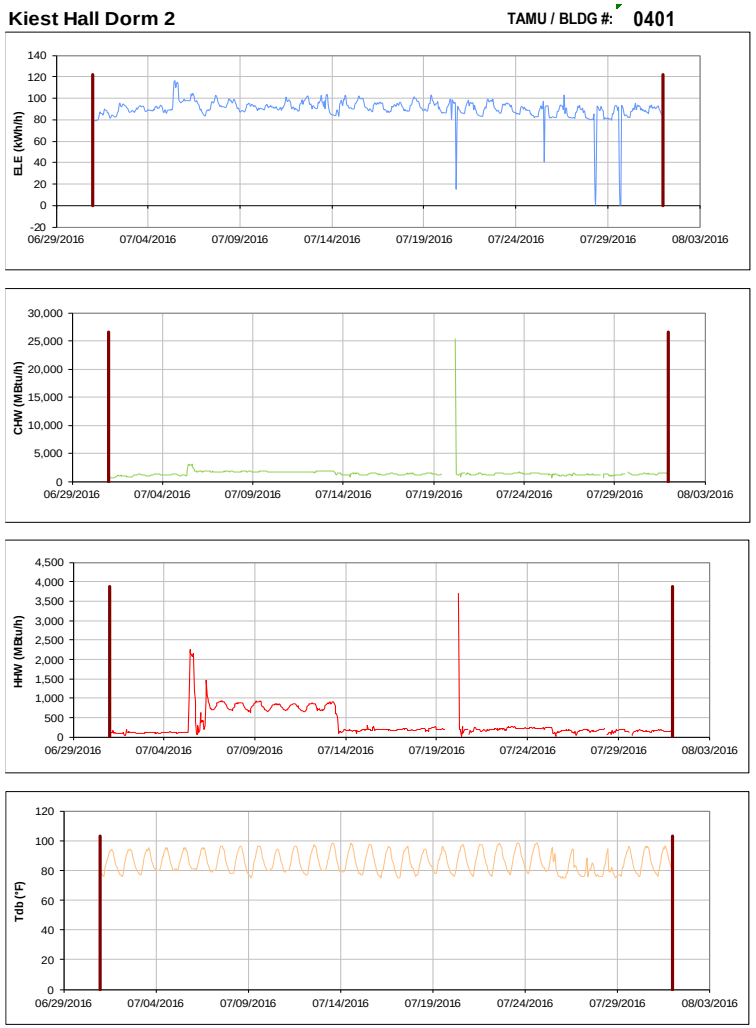


Figure III-26 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Kiest Hall Dorm 2 during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

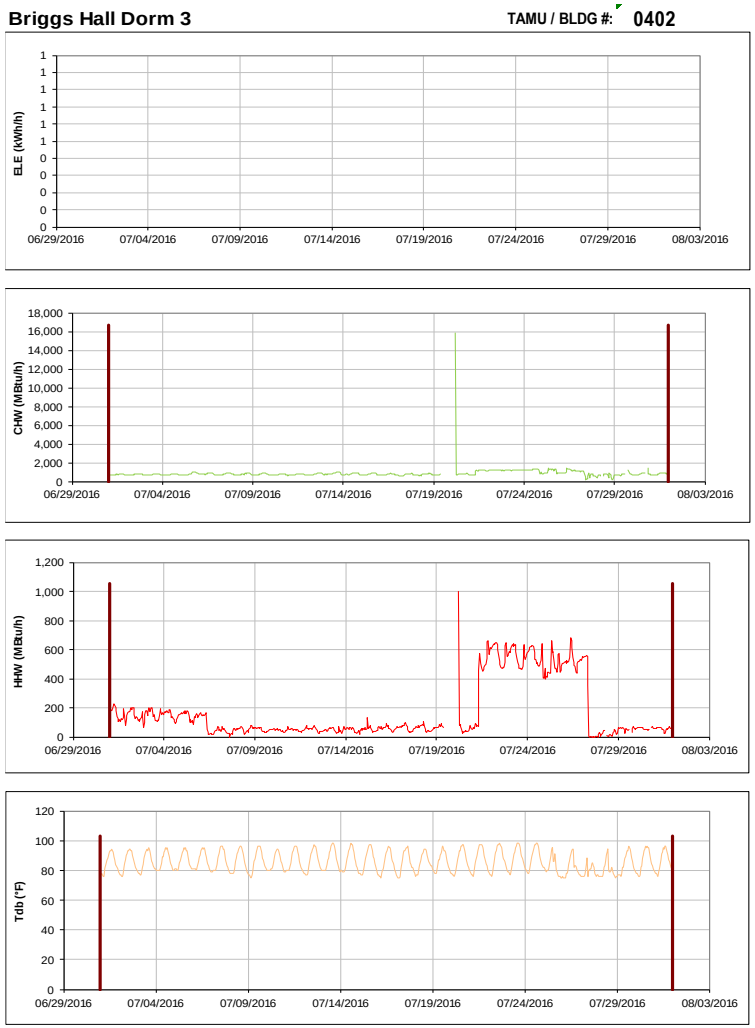


Figure III-27 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Briggs Hall Dorm 3 during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

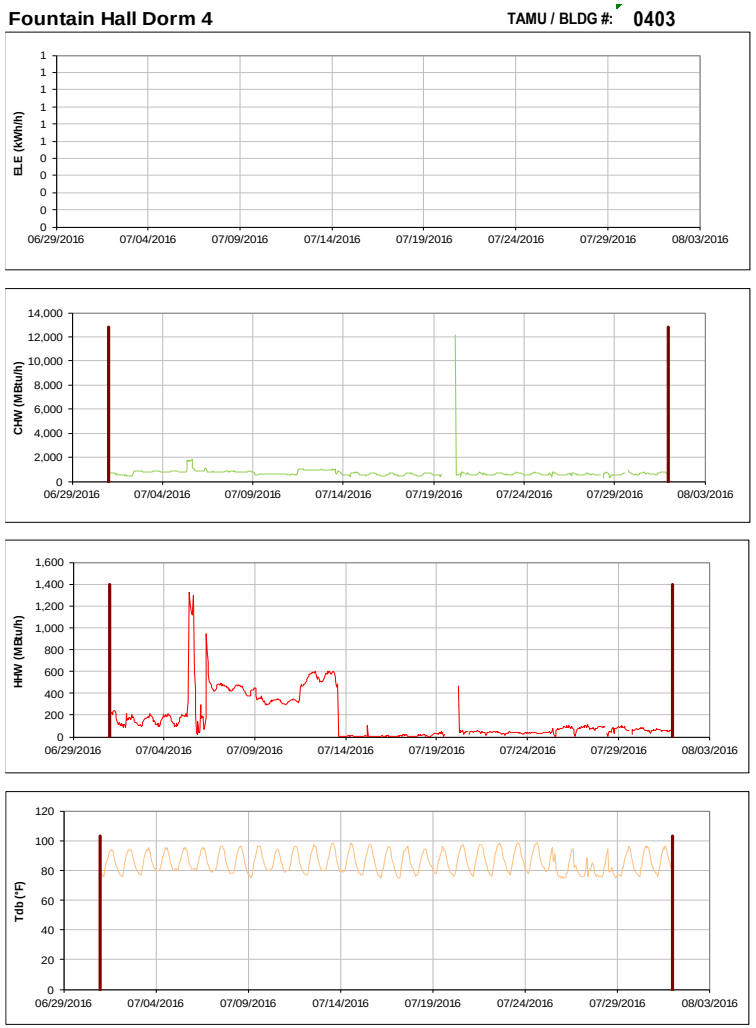


Figure III-28 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Fountain Hall Dorm 4 during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

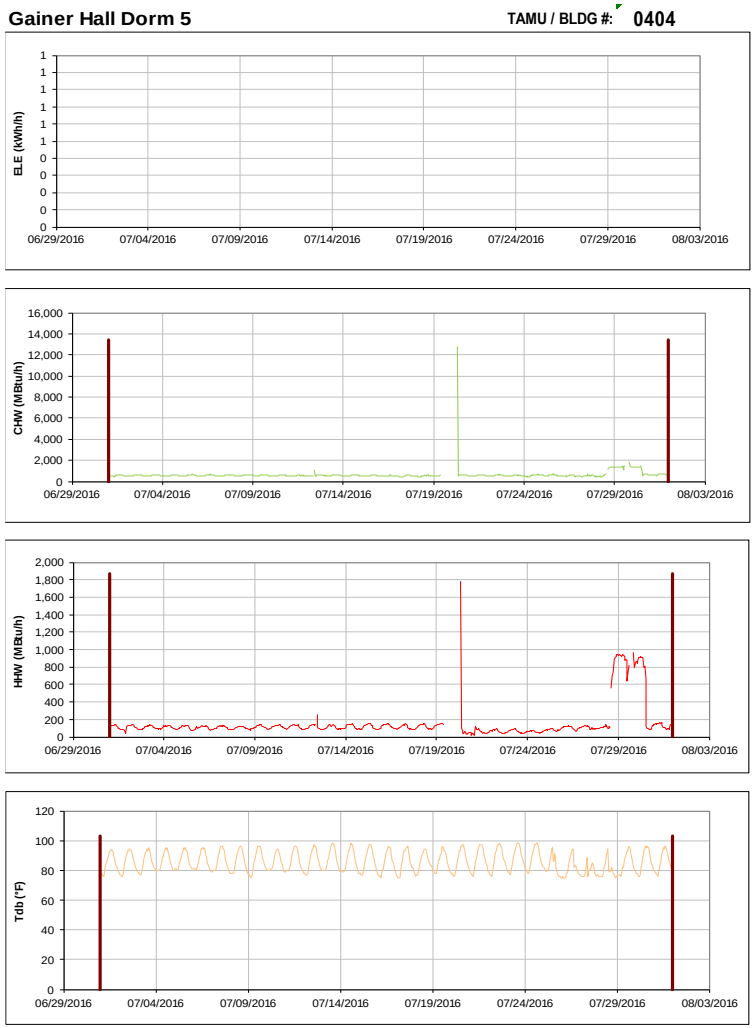


Figure III-29 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Gainer Hall Dorm 5 during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

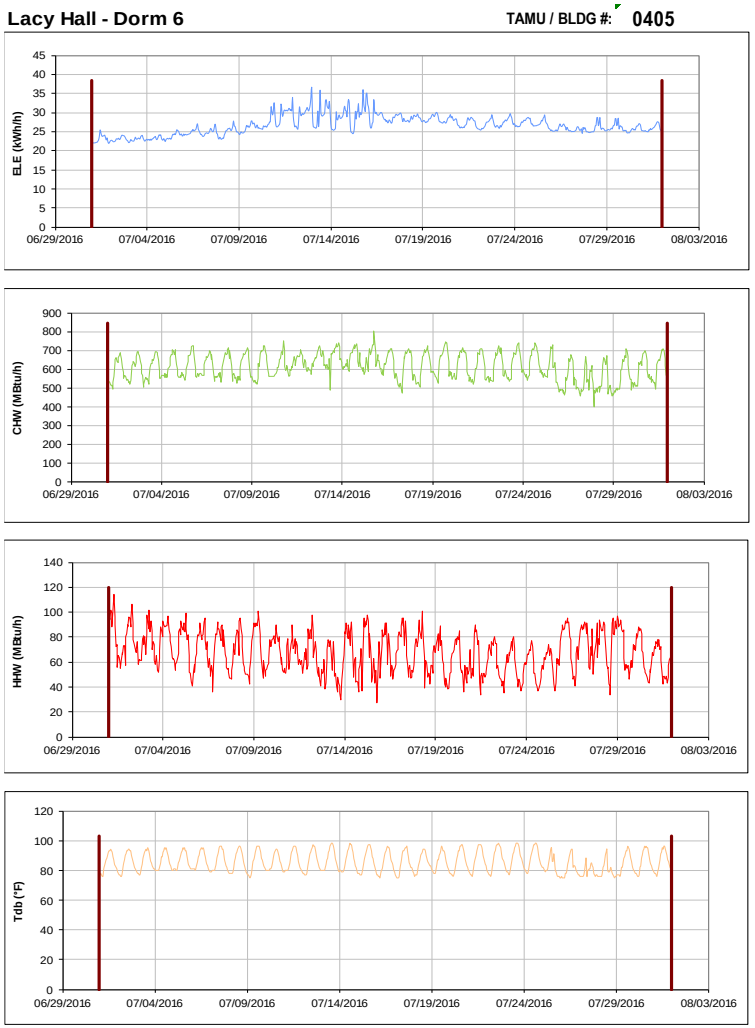


Figure III-30 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Lacy Hall - Dorm 6 during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

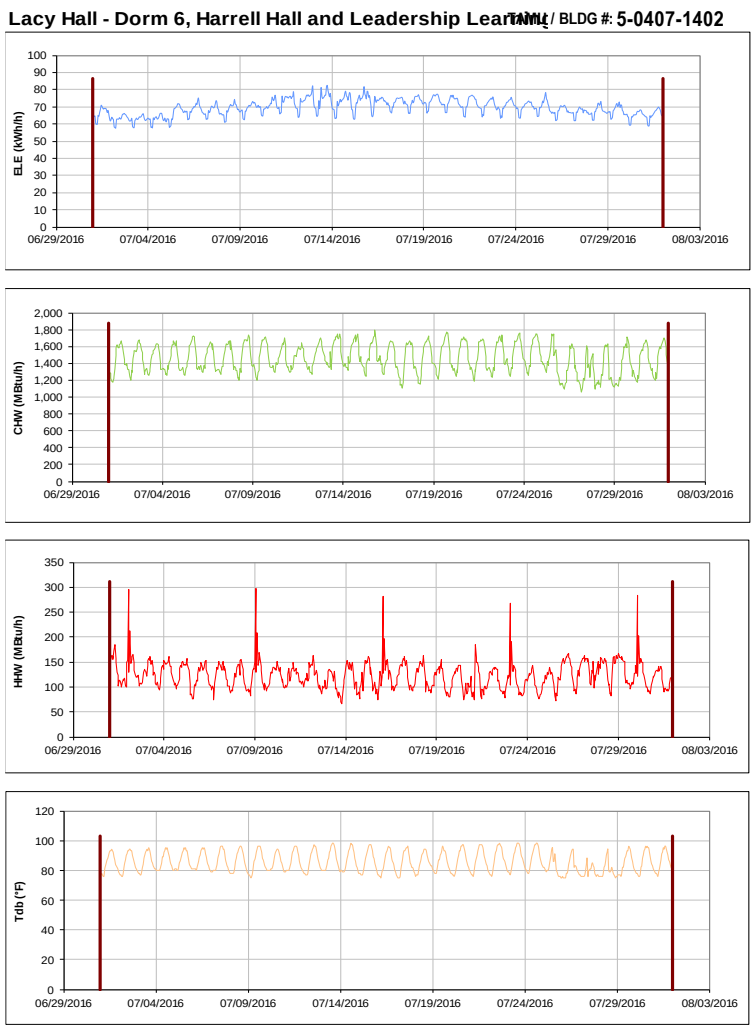


Figure III-31 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Lacy Hall - Dorm 6, Harrell Hall and Leadership Learning Center during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station,

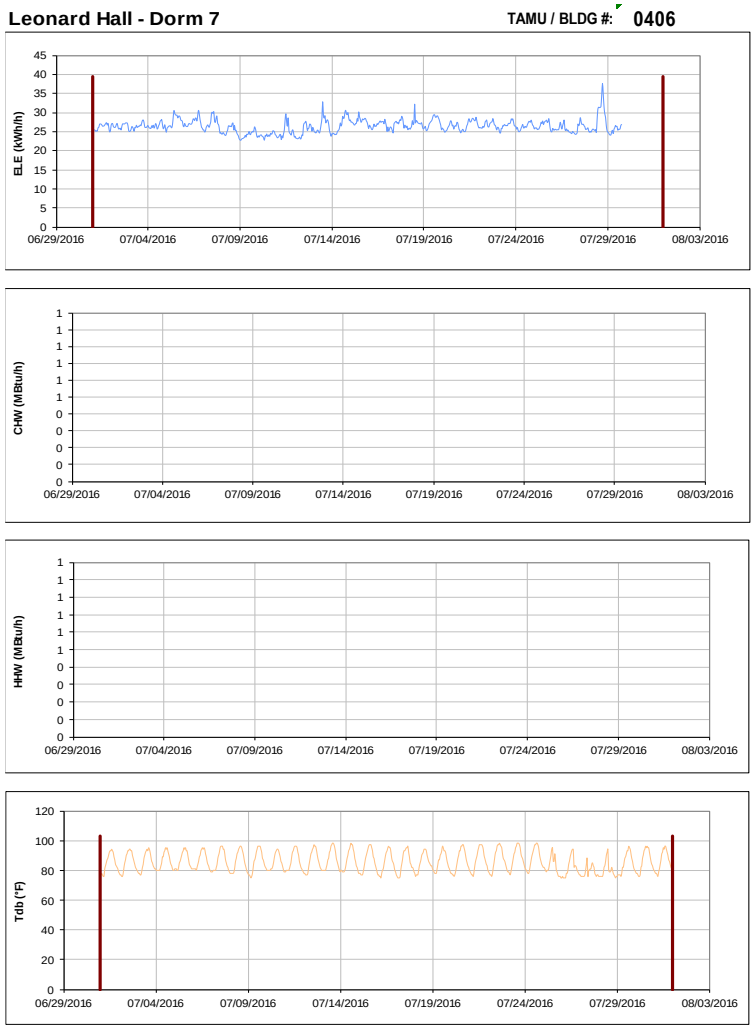


Figure III-32 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Leonard Hall - Dorm 7 during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

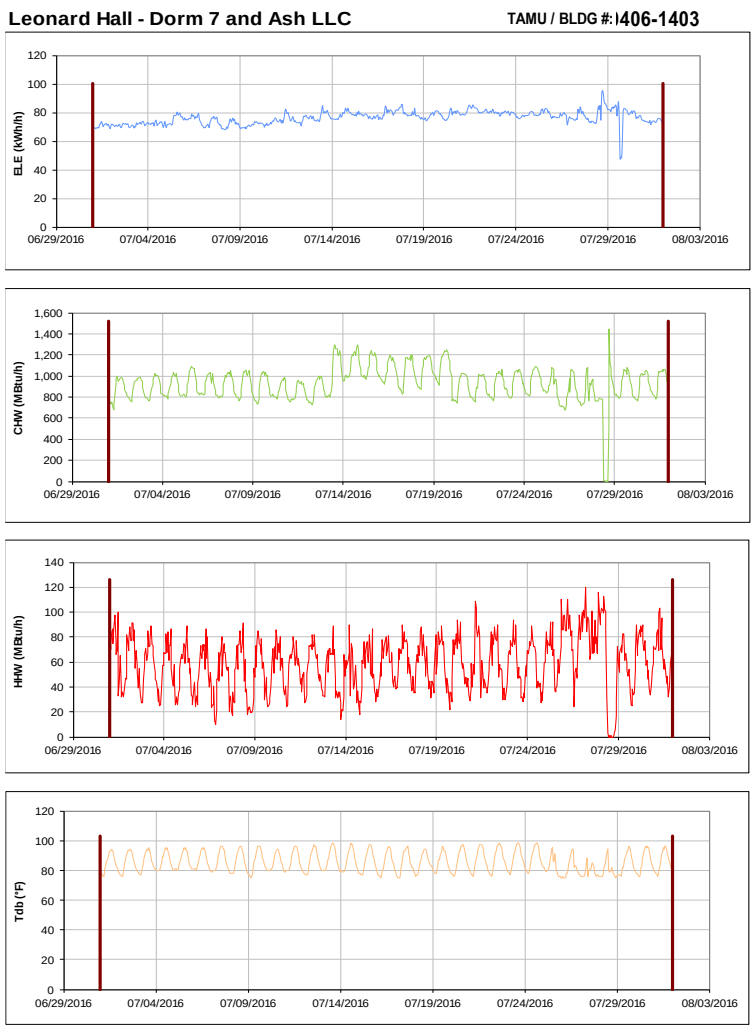


Figure III-33 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Leonard Hall - Dorm 7 and Ash LLC during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

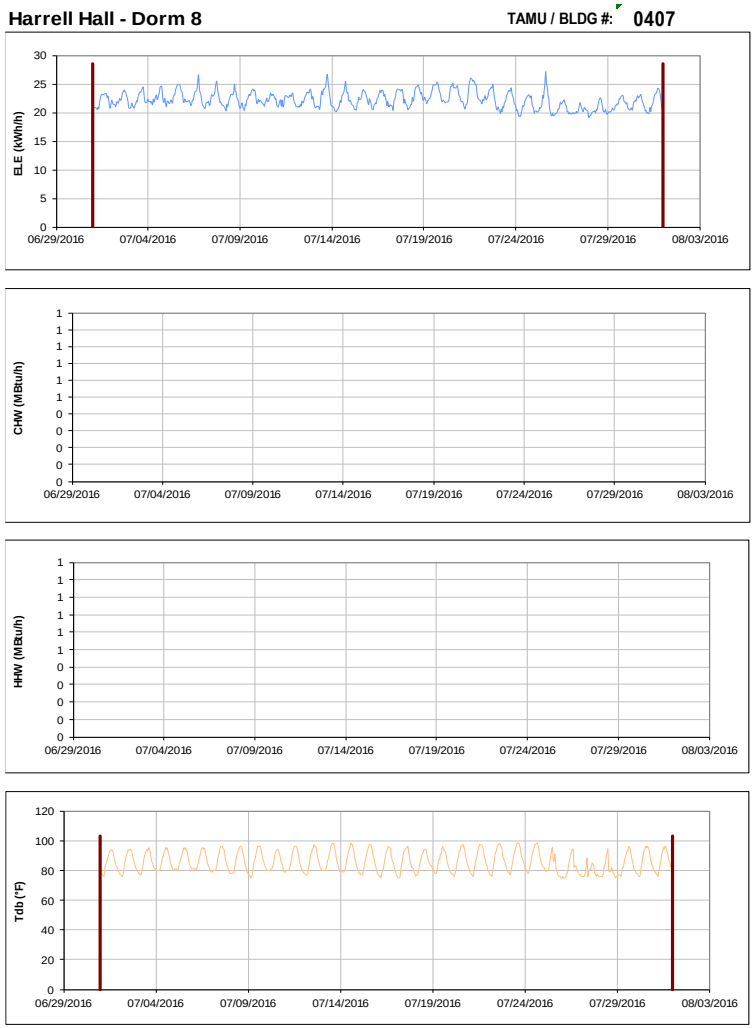


Figure III-34 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Harrell Hall - Dorm 8 during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

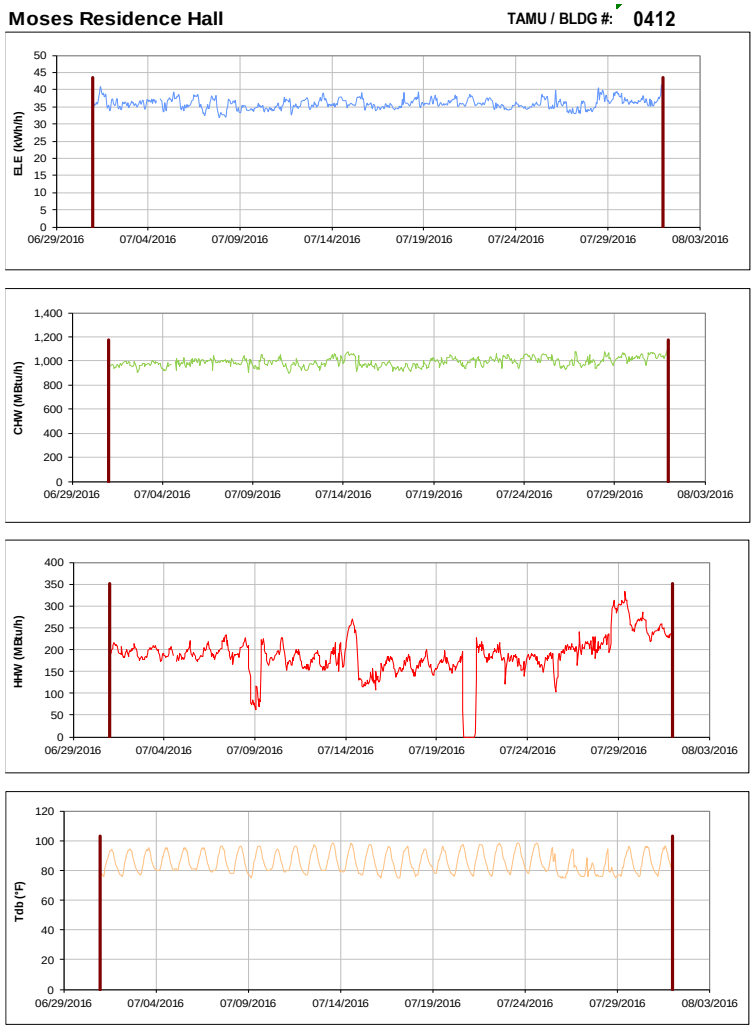


Figure III-35 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Moses Residence Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

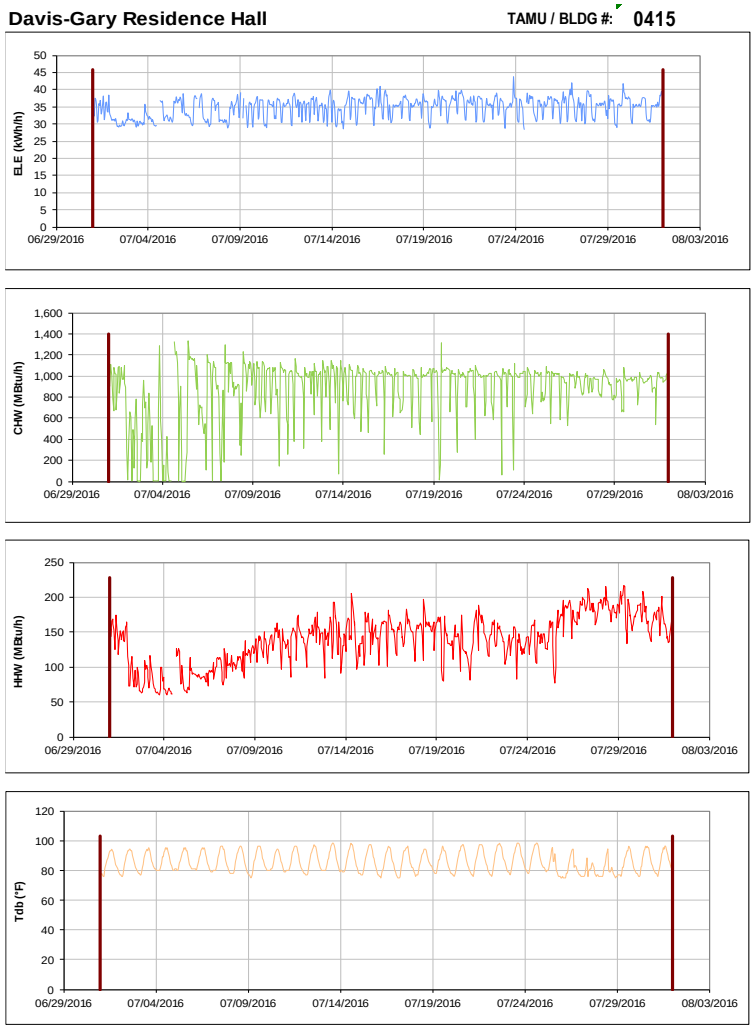


Figure III-36 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Davis-Gary Residence Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

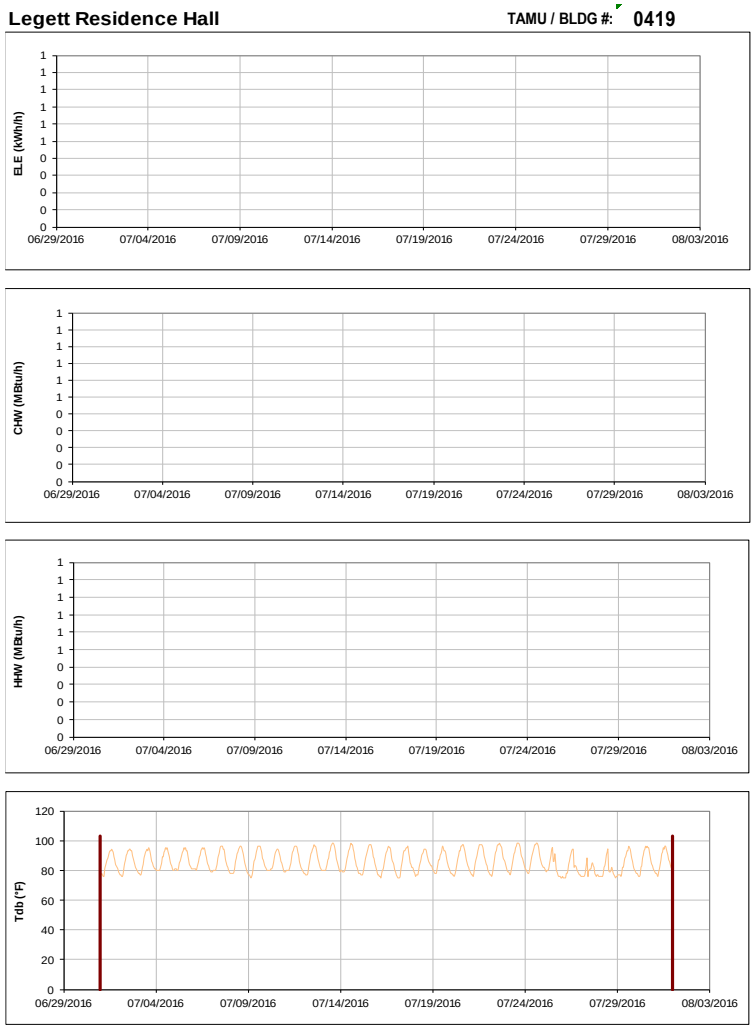


Figure III-37 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Legett Residence Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

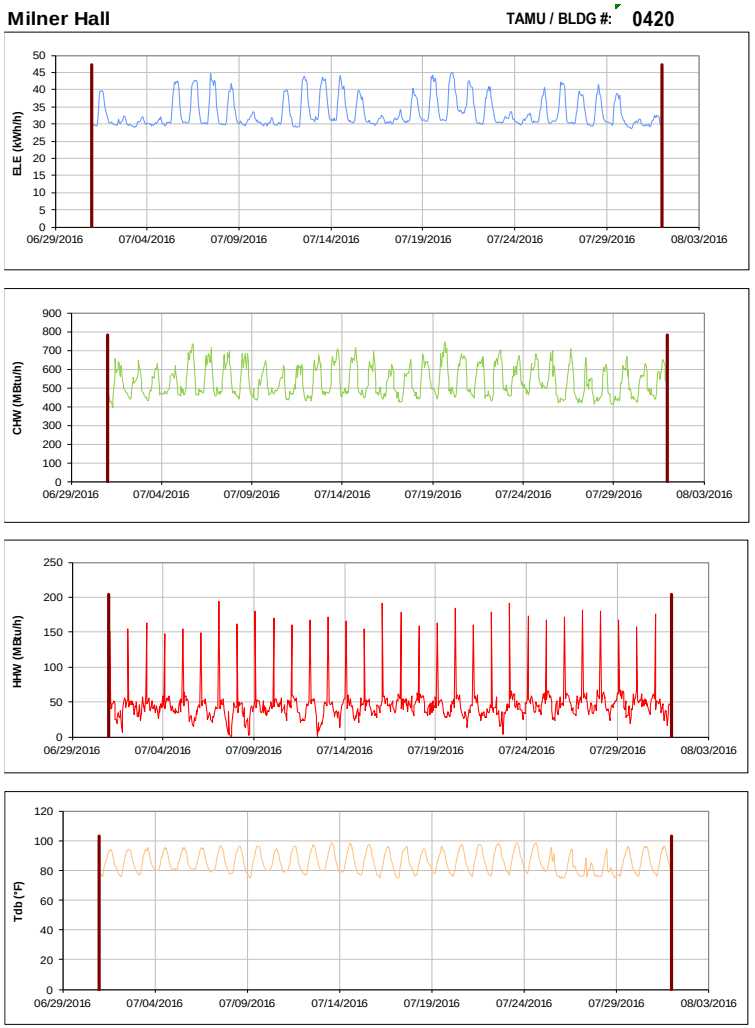


Figure III-38 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Milner Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

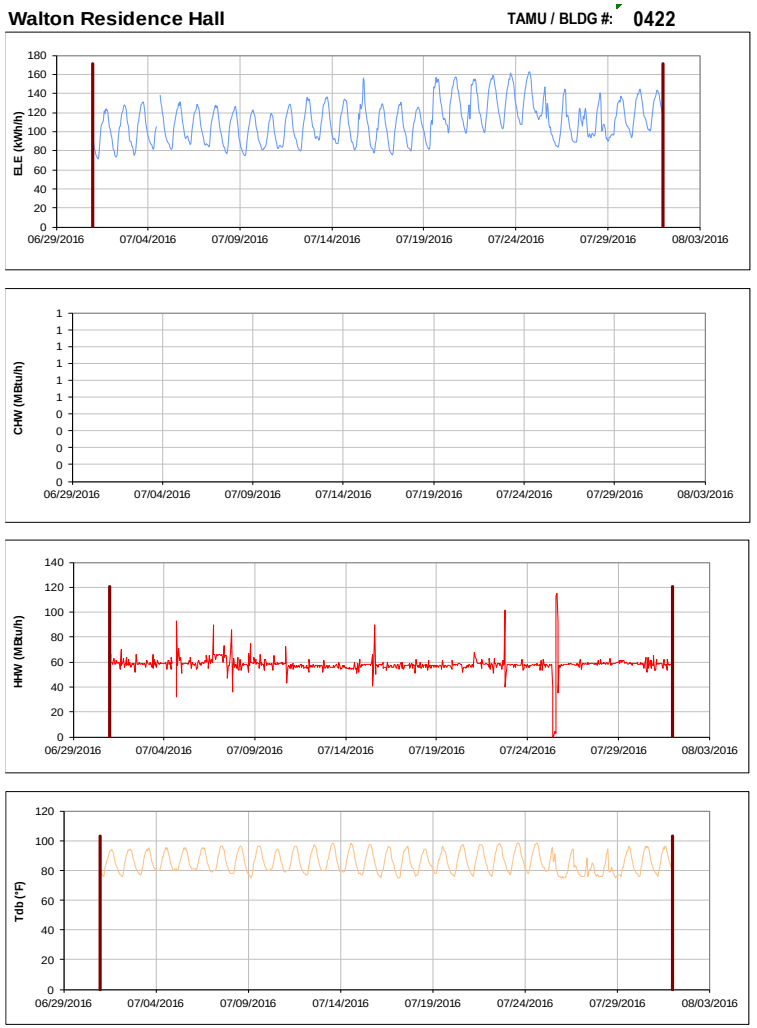


Figure III-39 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Walton Residence Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

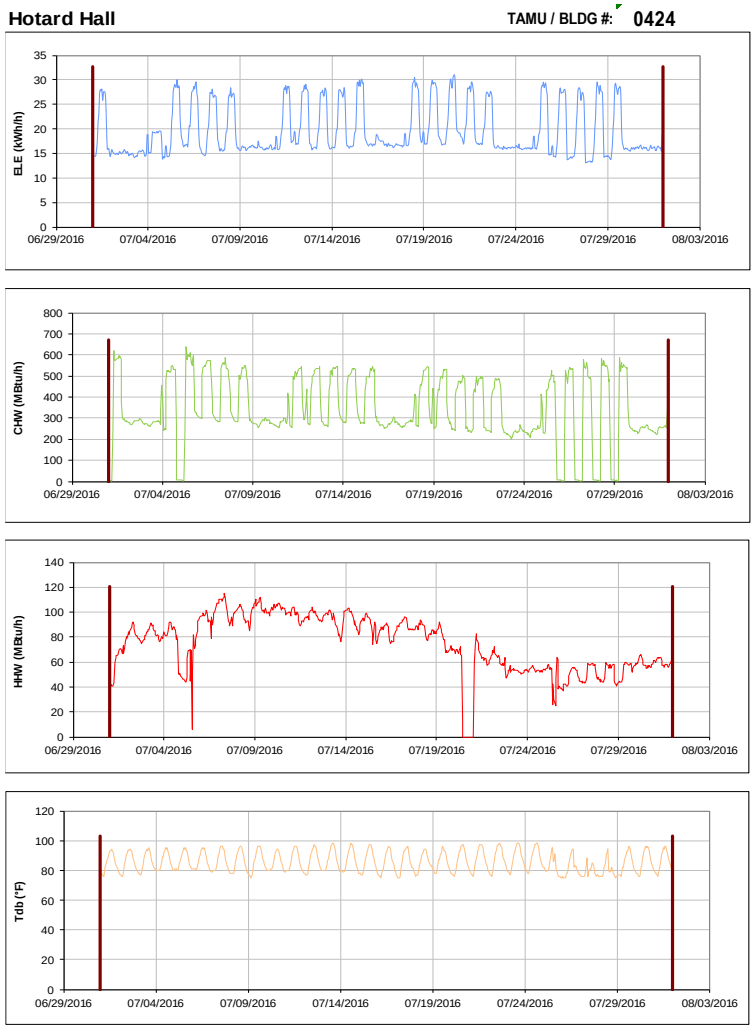


Figure III-40 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Hotard Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

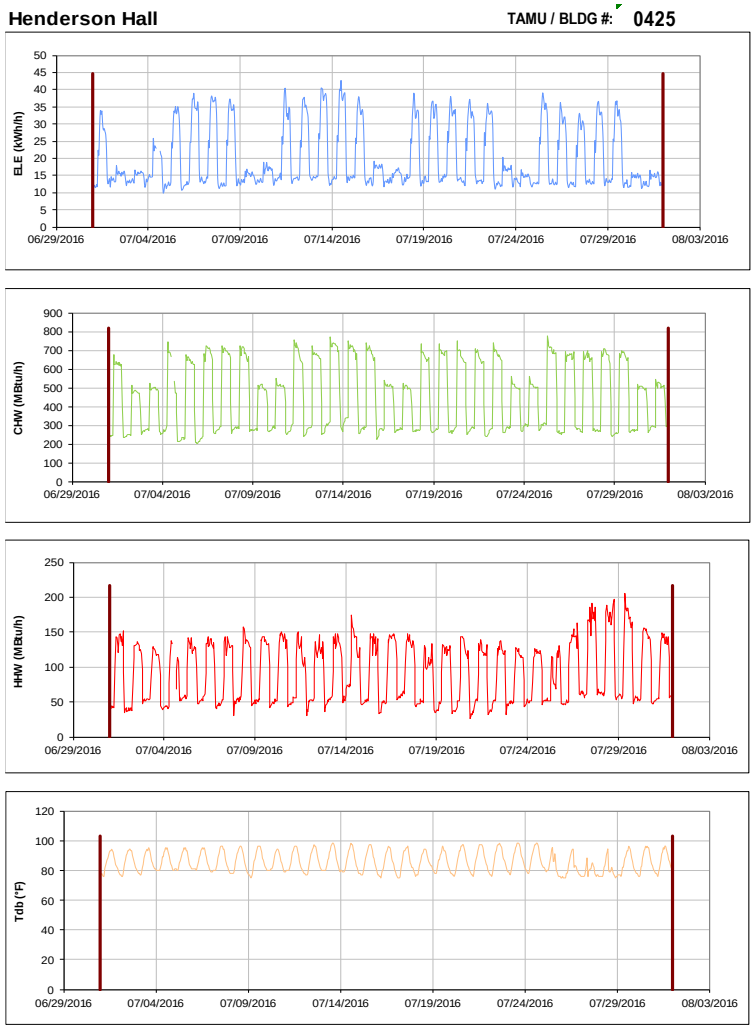


Figure III-41 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Henderson Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

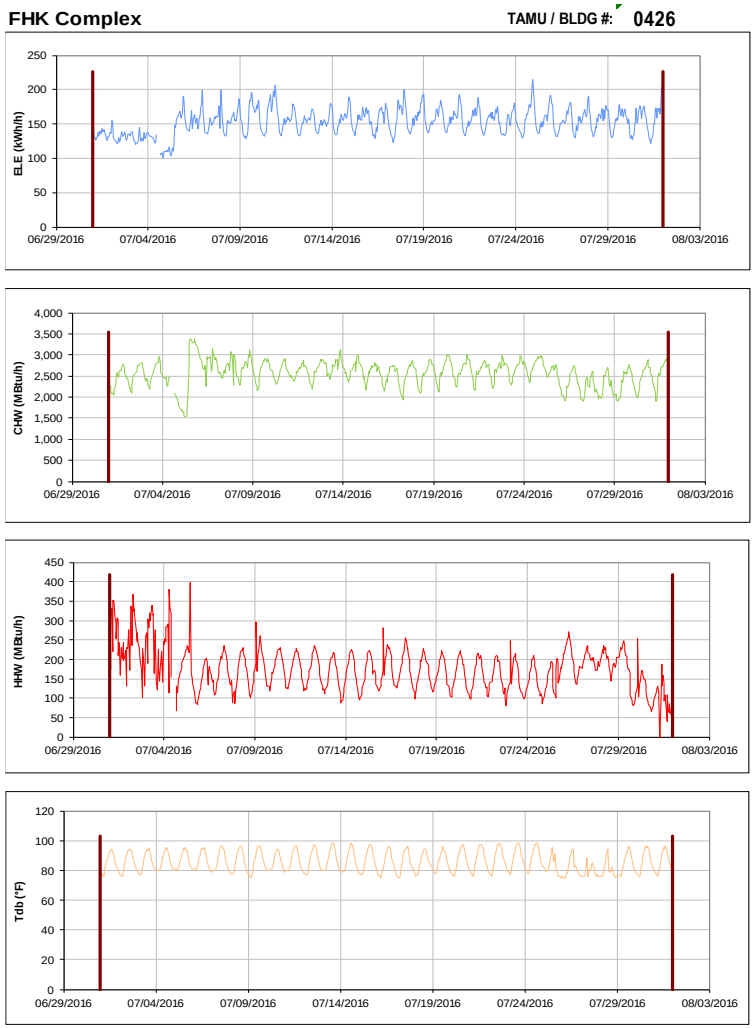


Figure III-42 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for FHK Complex during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

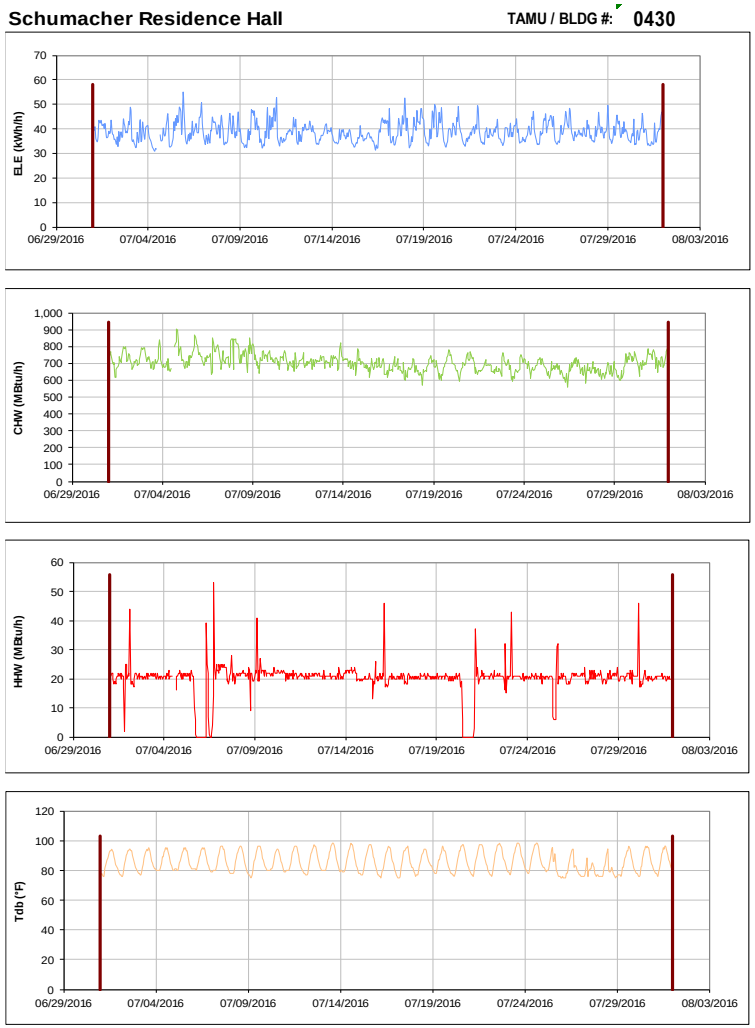


Figure III-43 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Schumacher Residence Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

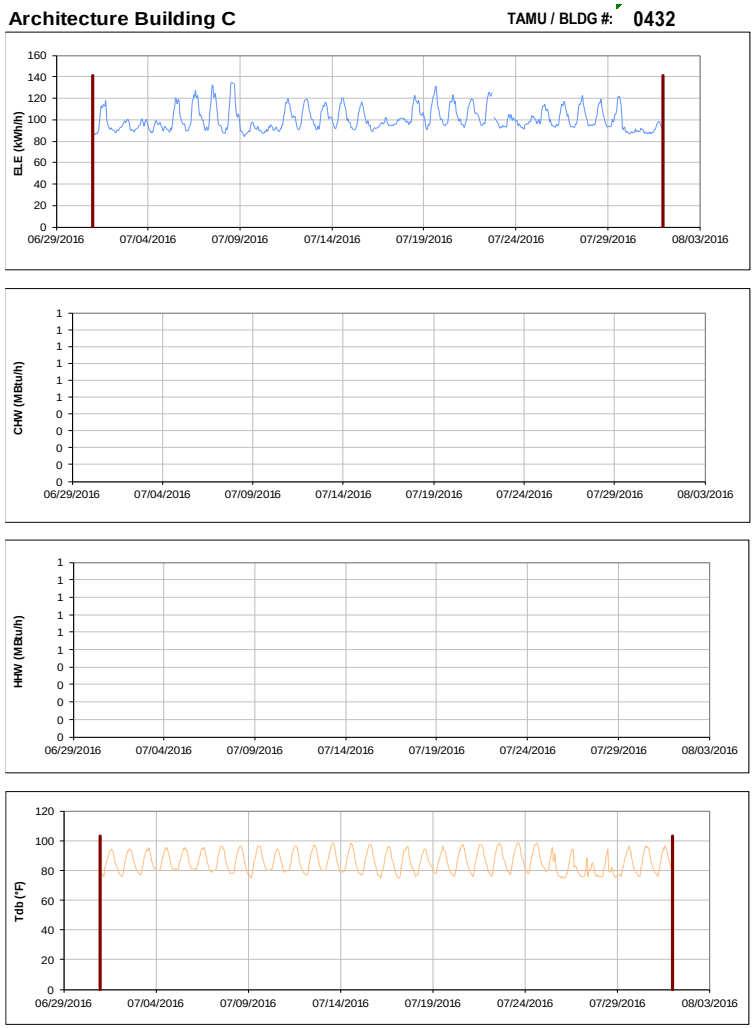


Figure III-44 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Architecture Building C during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

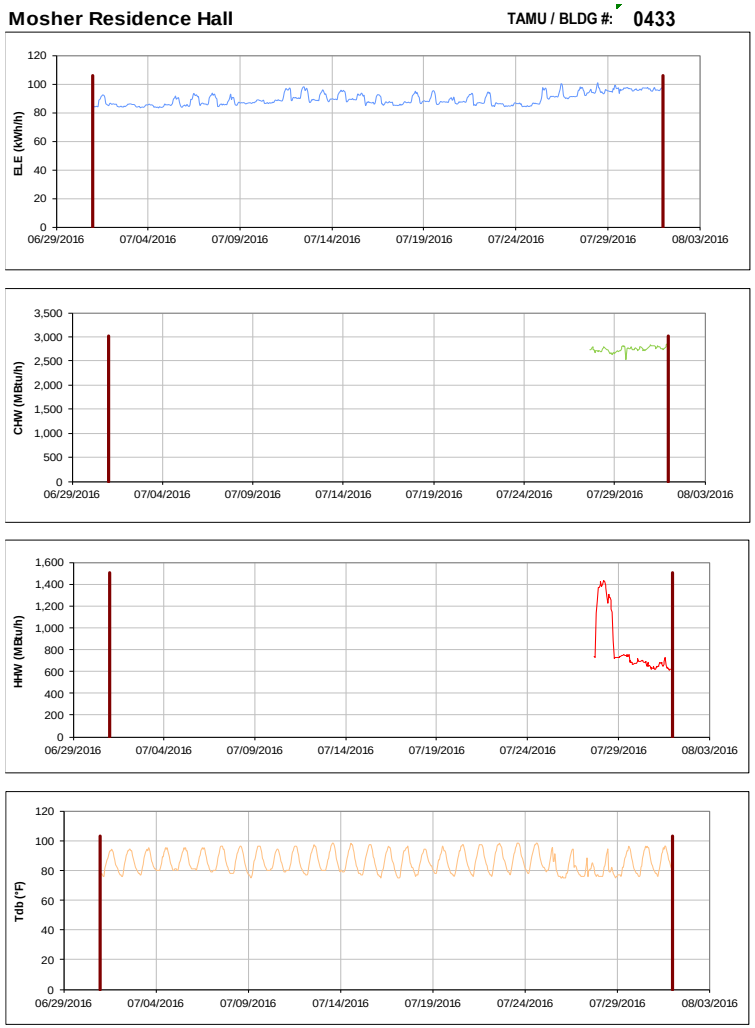


Figure III-45 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Mosher Residence Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

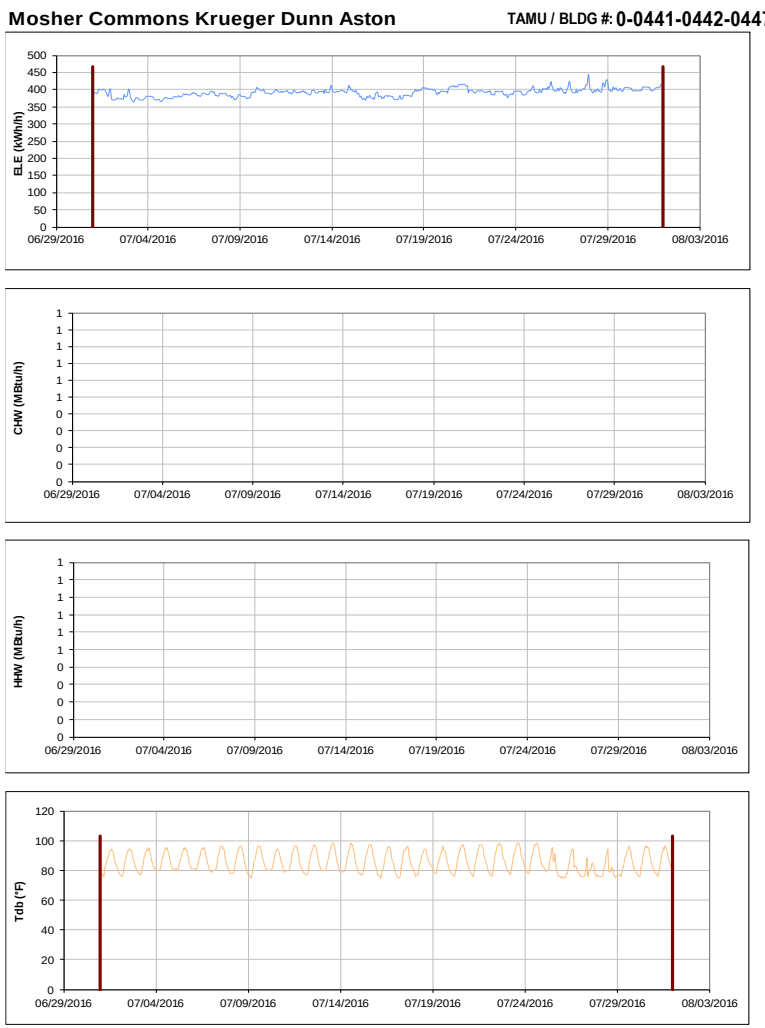


Figure III-46 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Mosher Commons Krueger Dunn Aston during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

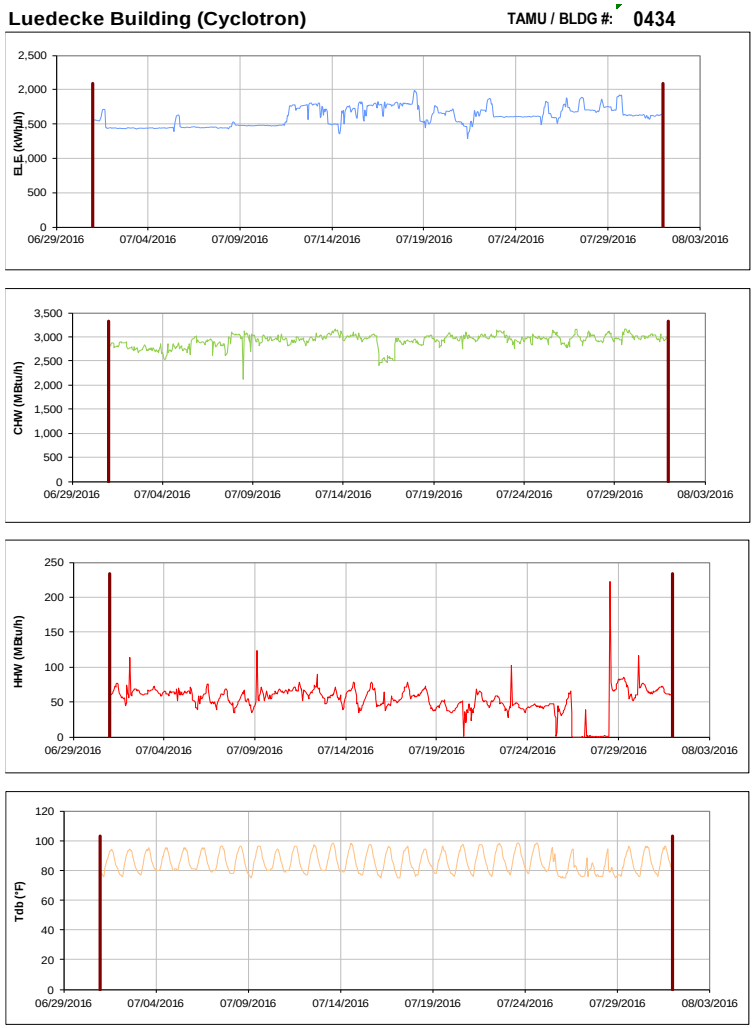


Figure III-47 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Luedecke Building (Cyclotron) during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

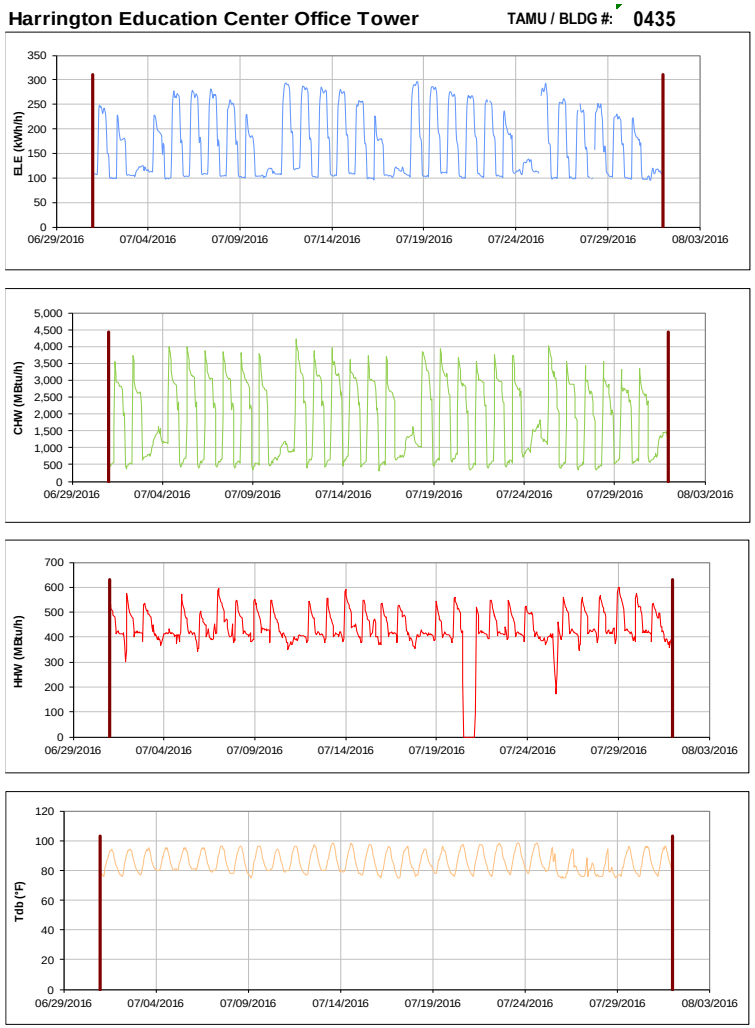


Figure III-48 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Harrington Education Center Office Tower during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

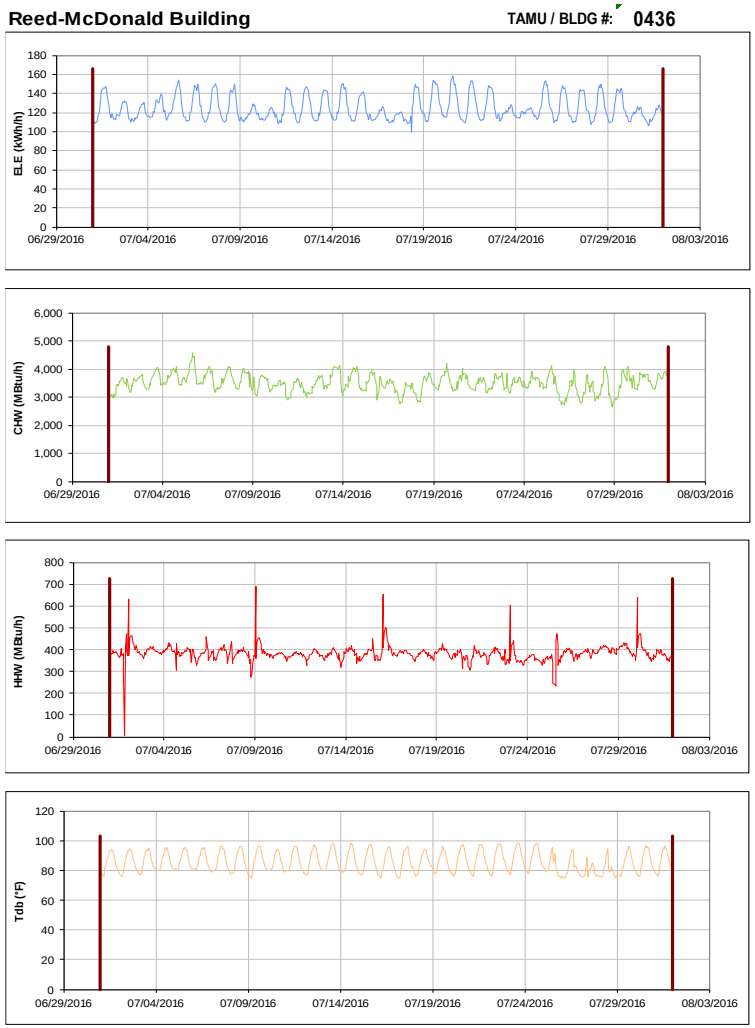


Figure III-49 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Reed-McDonald Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

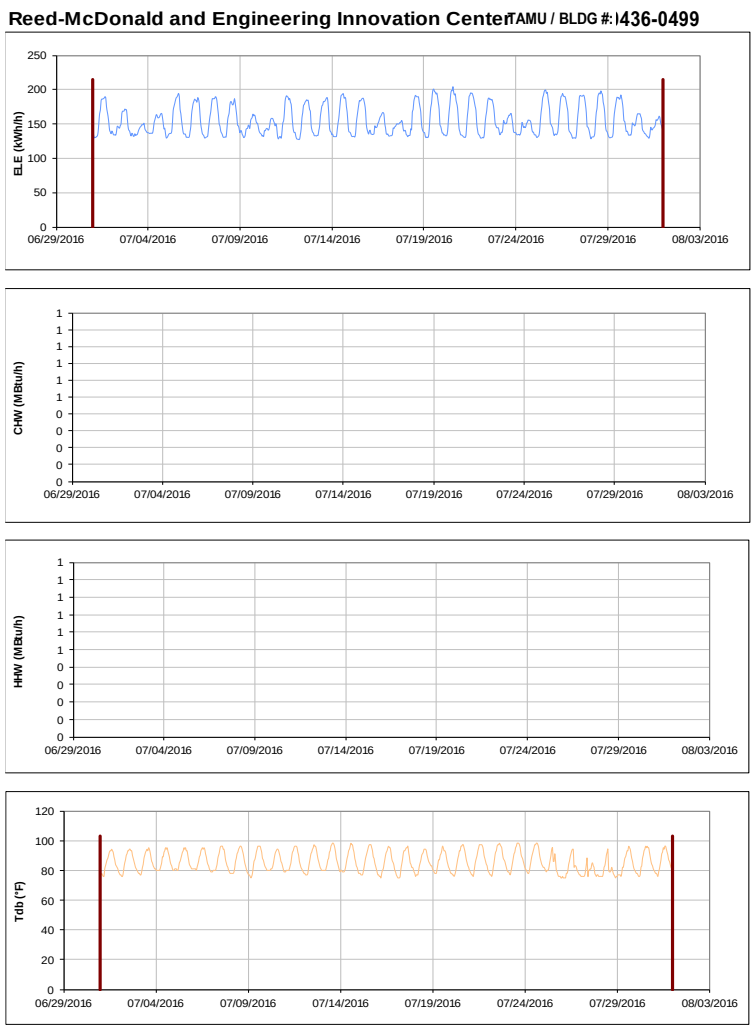


Figure III-50 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Reed-McDonald and Engineering Innovation Center during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

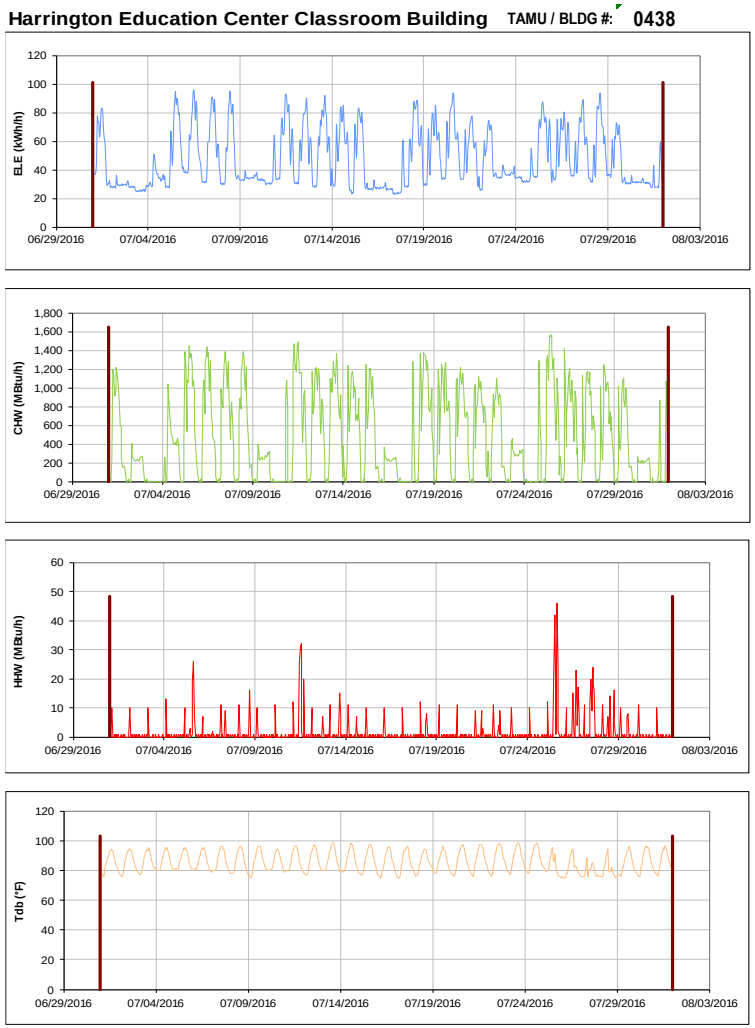


Figure III-51 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Harrington Education Center Classroom Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

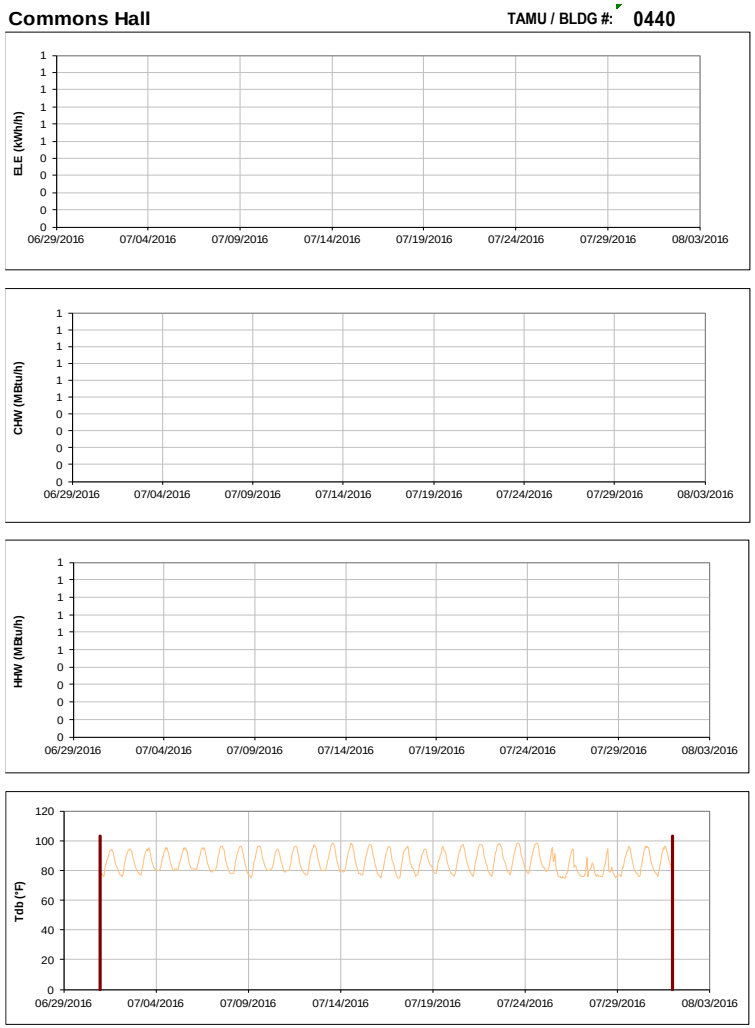


Figure III-52 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Commons Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

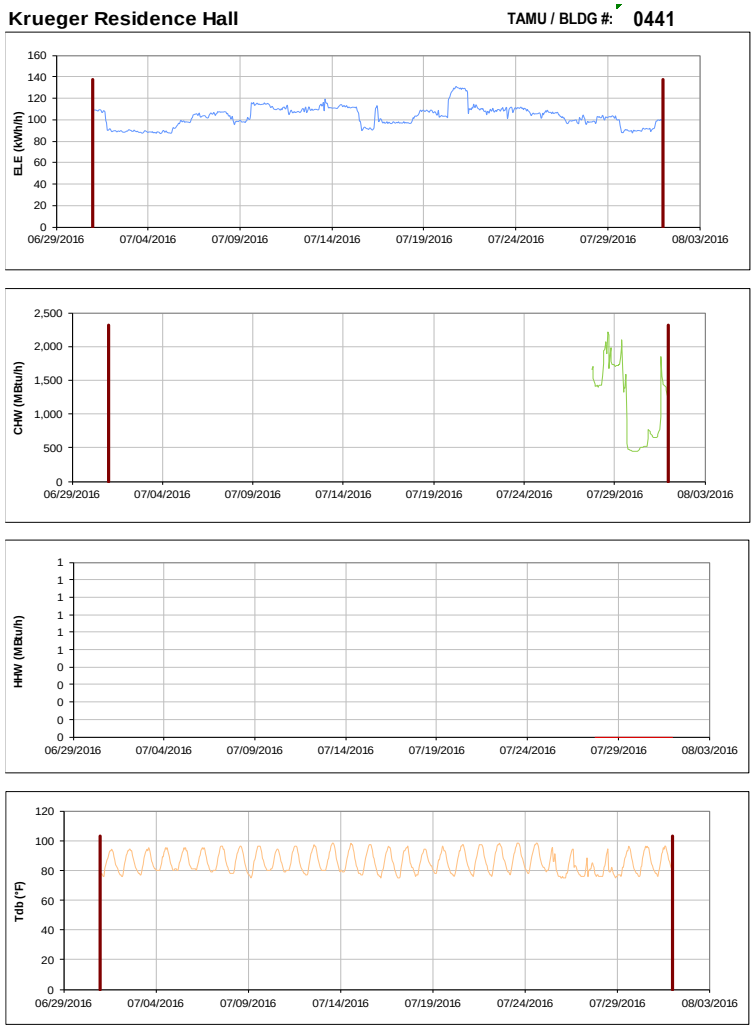


Figure III-53 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Krueger Residence Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

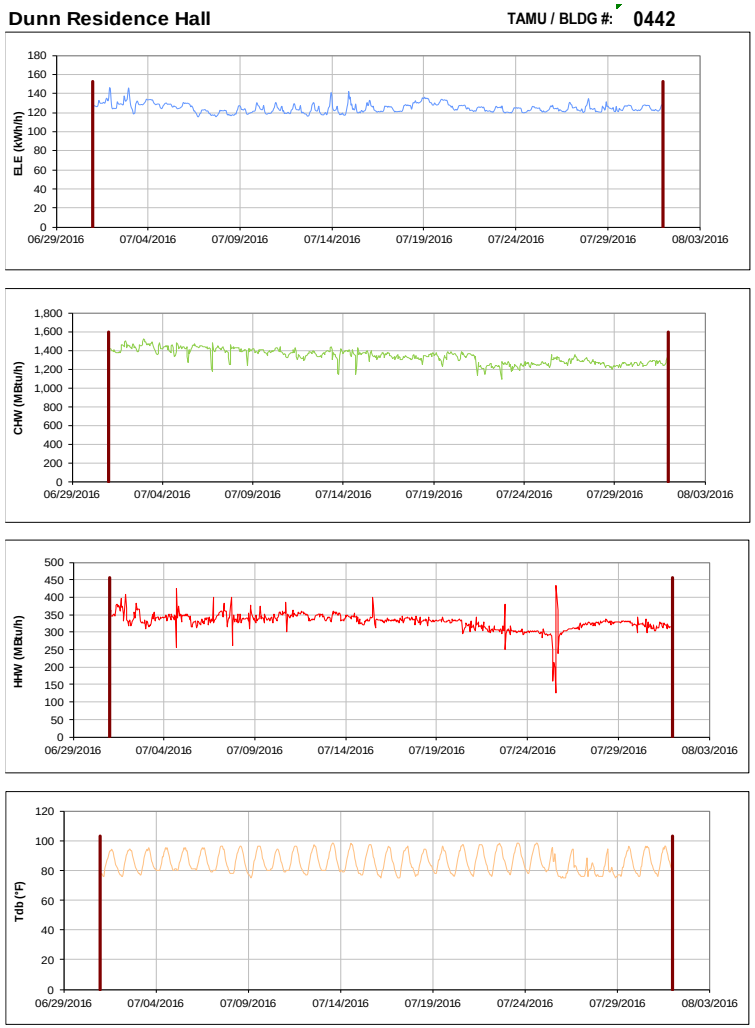


Figure III-54 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Dunn Residence Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

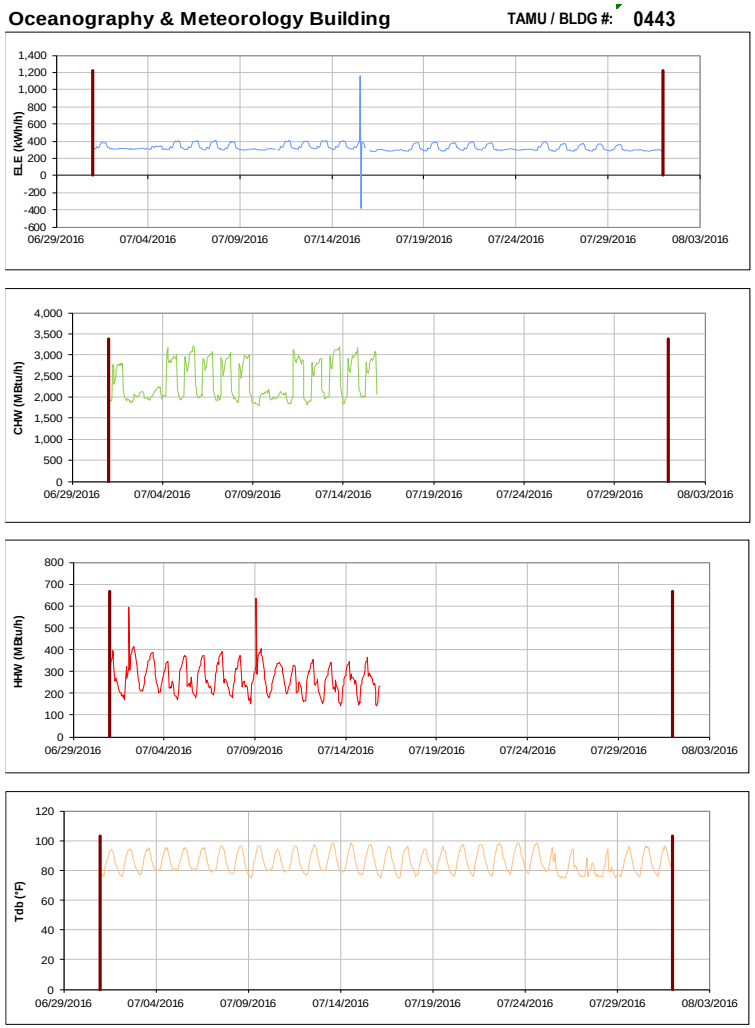


Figure III-55 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Oceanography & Meteorology Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

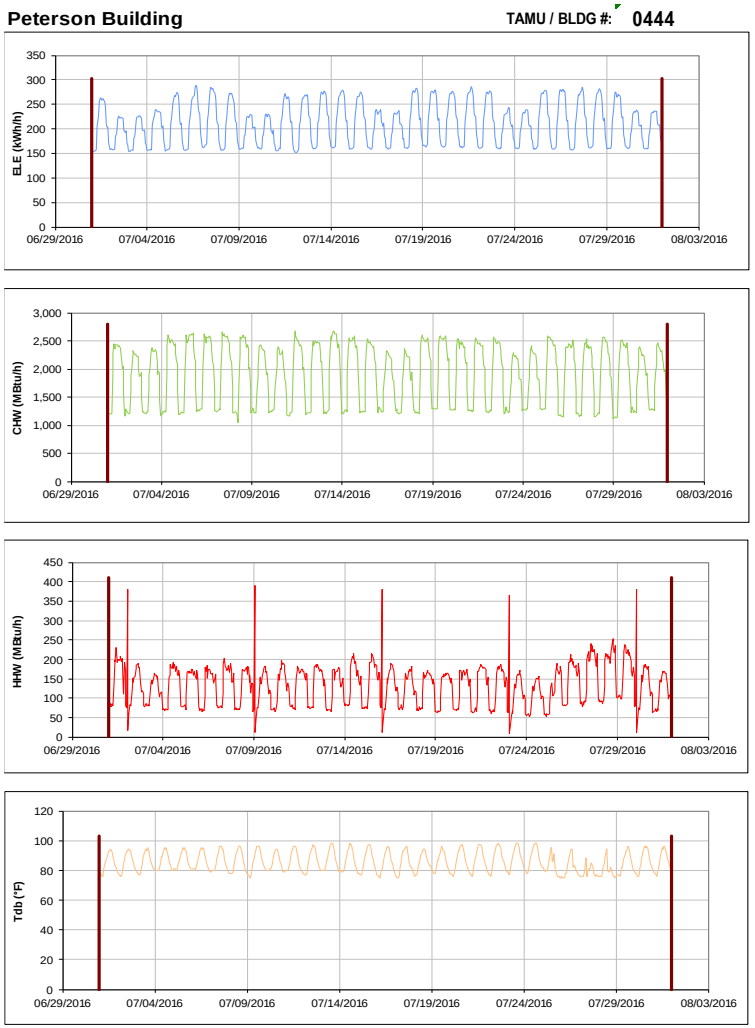


Figure III-56 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Peterson Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

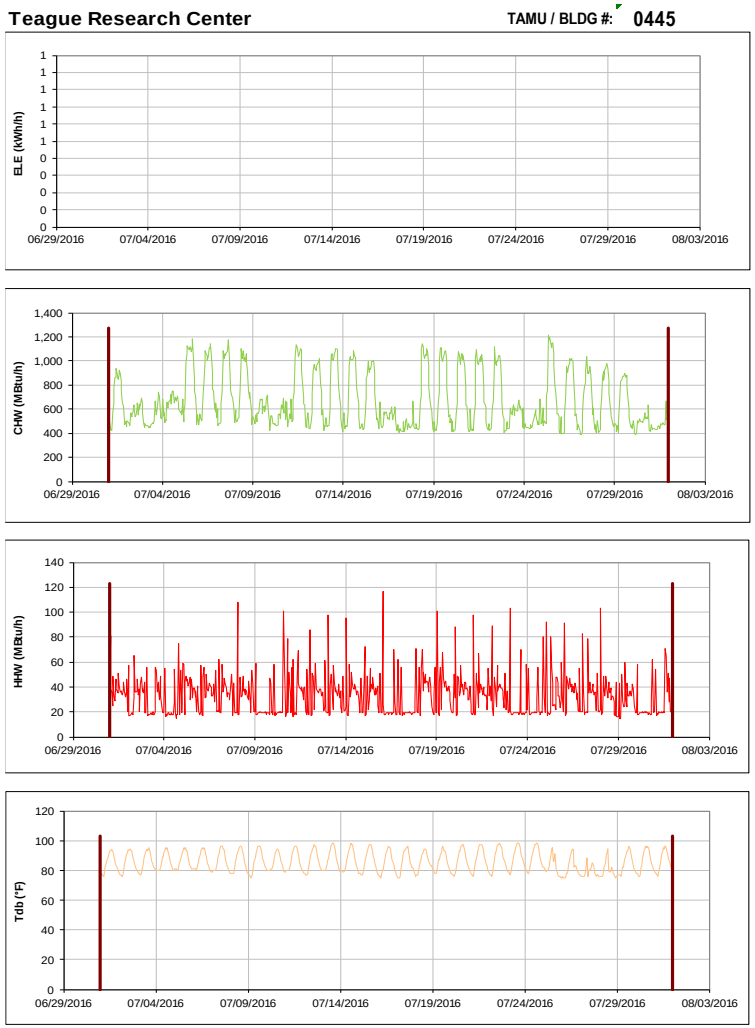


Figure III-57 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Teague Research Center during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

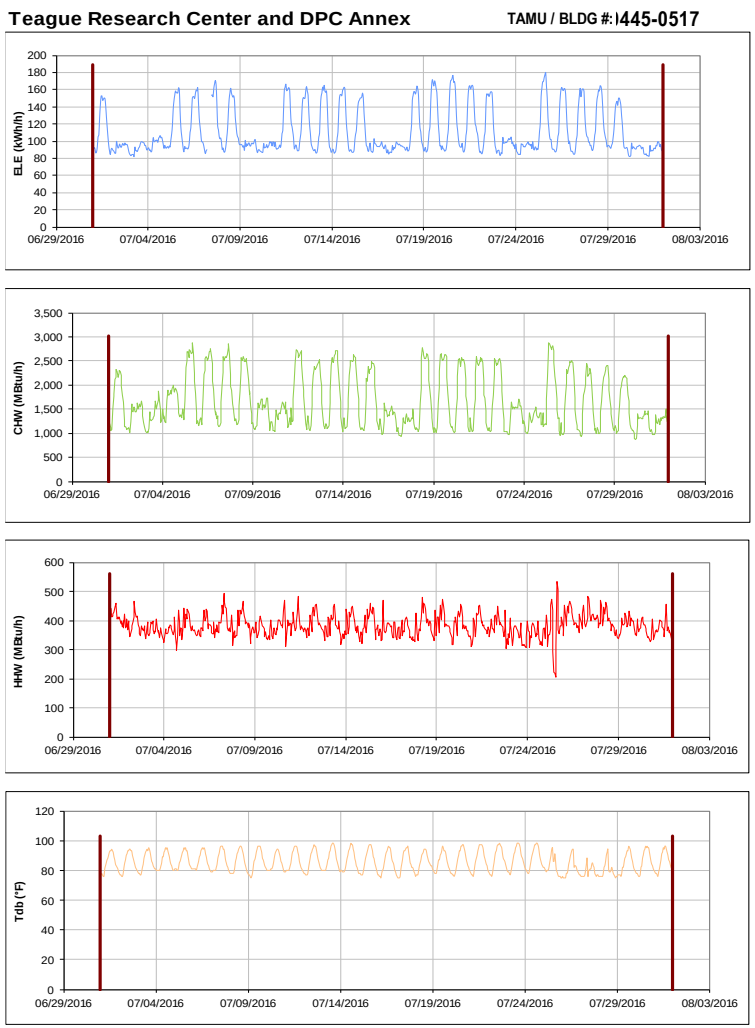


Figure III-58 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Teague Research Center and DPC Annex during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

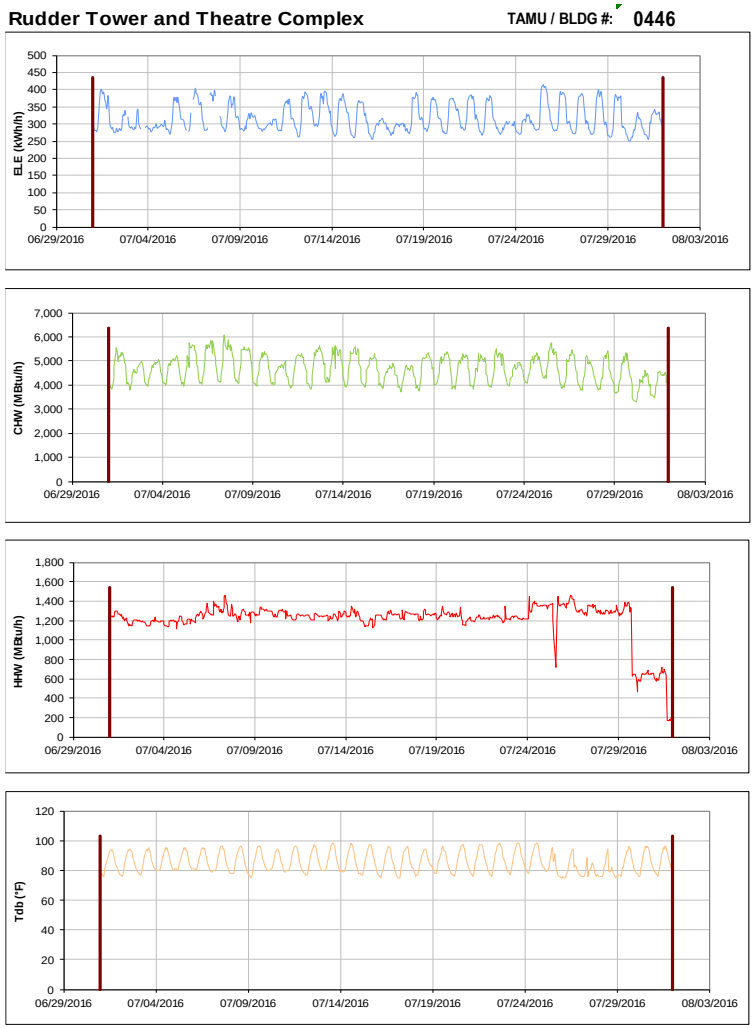


Figure III-59 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rudder Tower and Theatre Complex during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

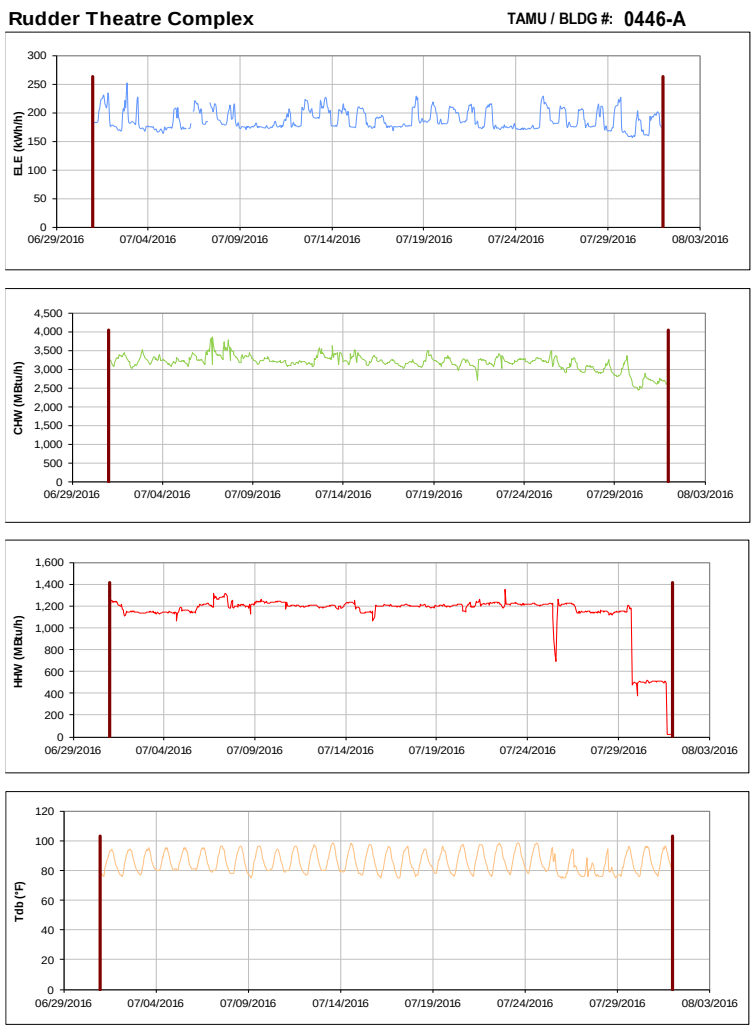


Figure III-60 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rudder Theatre Complex during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

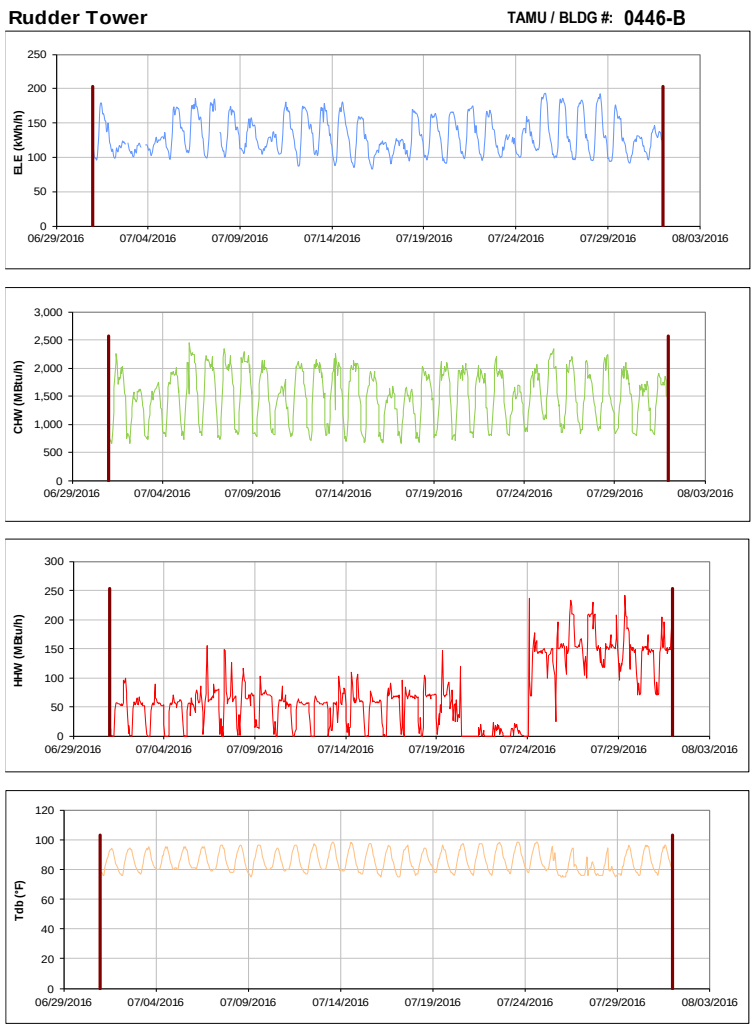


Figure III-61 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rudder Tower during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

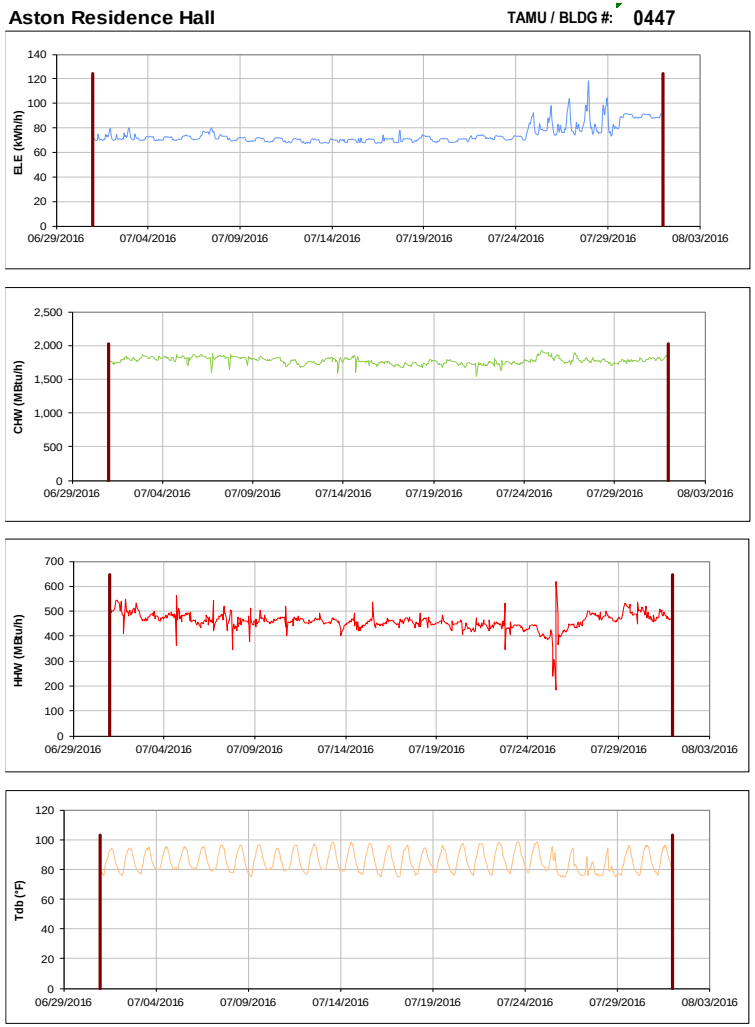


Figure III-62 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Aston Residence Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

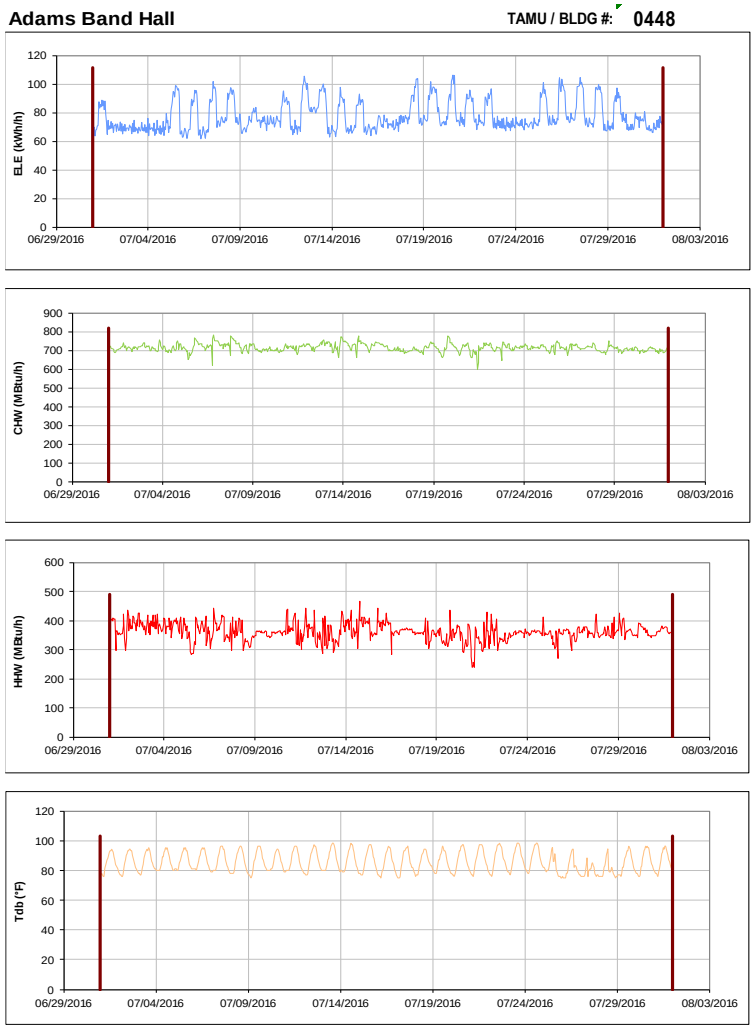


Figure III-63 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Adams Band Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

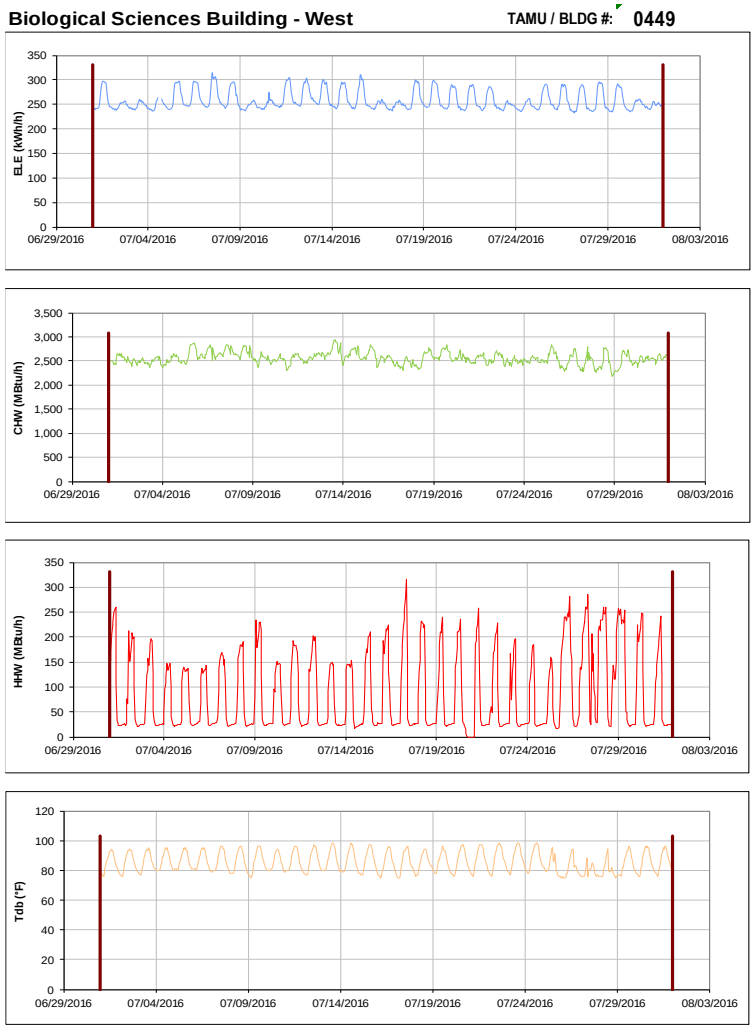


Figure III-64 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Biological Sciences Building - West during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

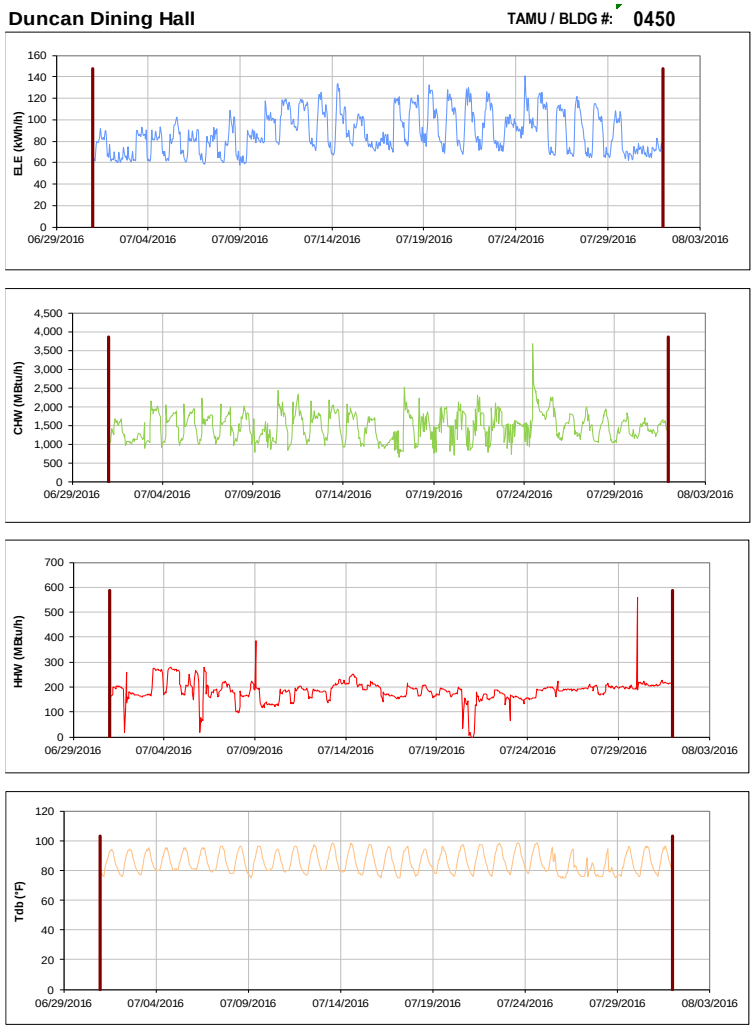


Figure III-65 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Duncan Dining Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

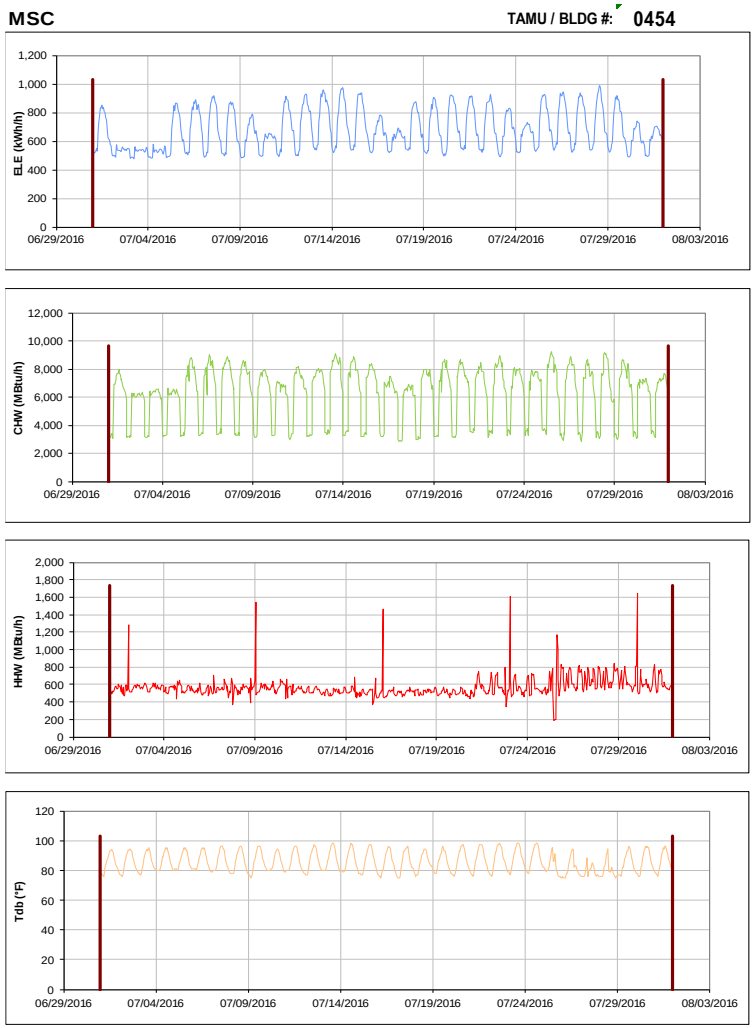


Figure III-66 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for MSC during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

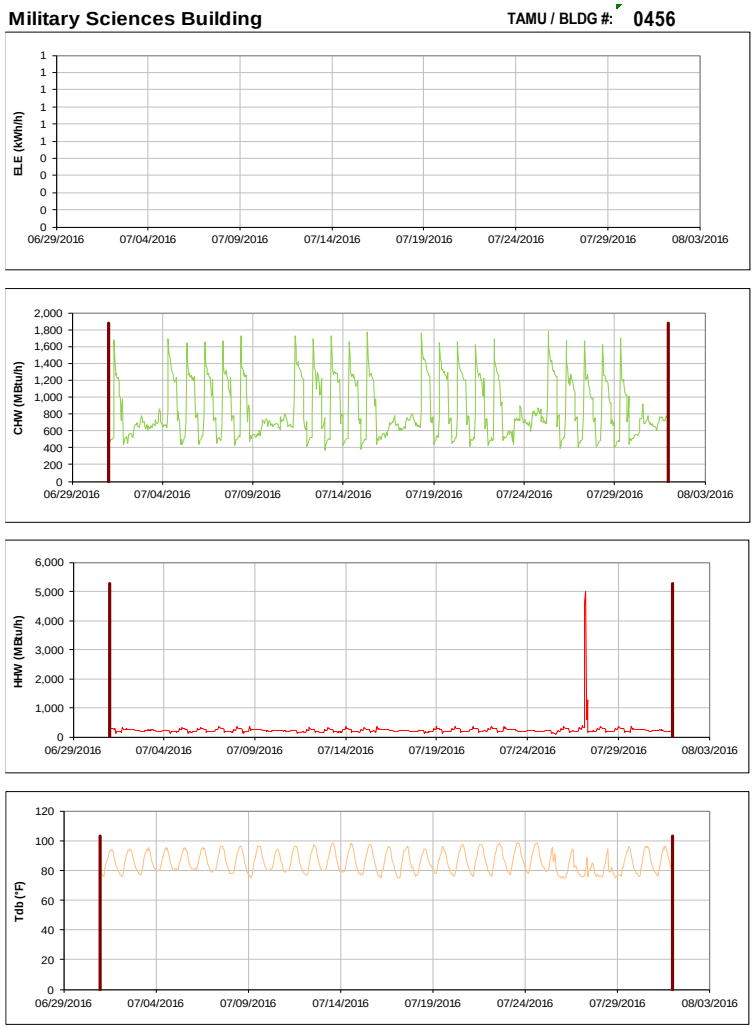


Figure III-67 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Military Sciences Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

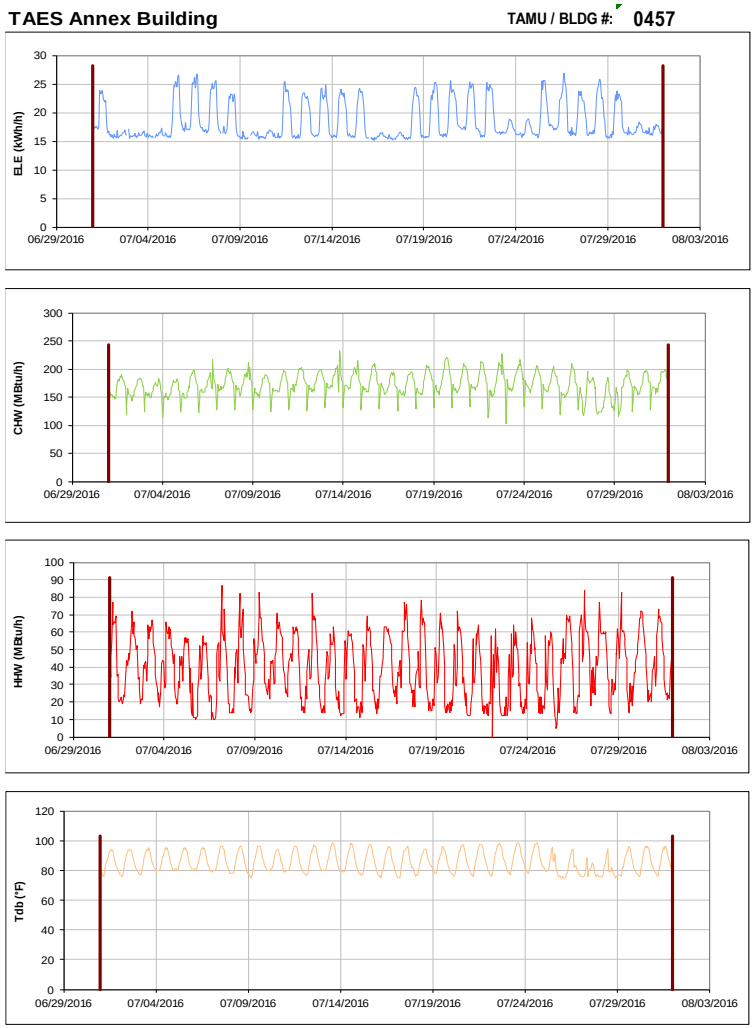


Figure III-68 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for TAES Annex Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

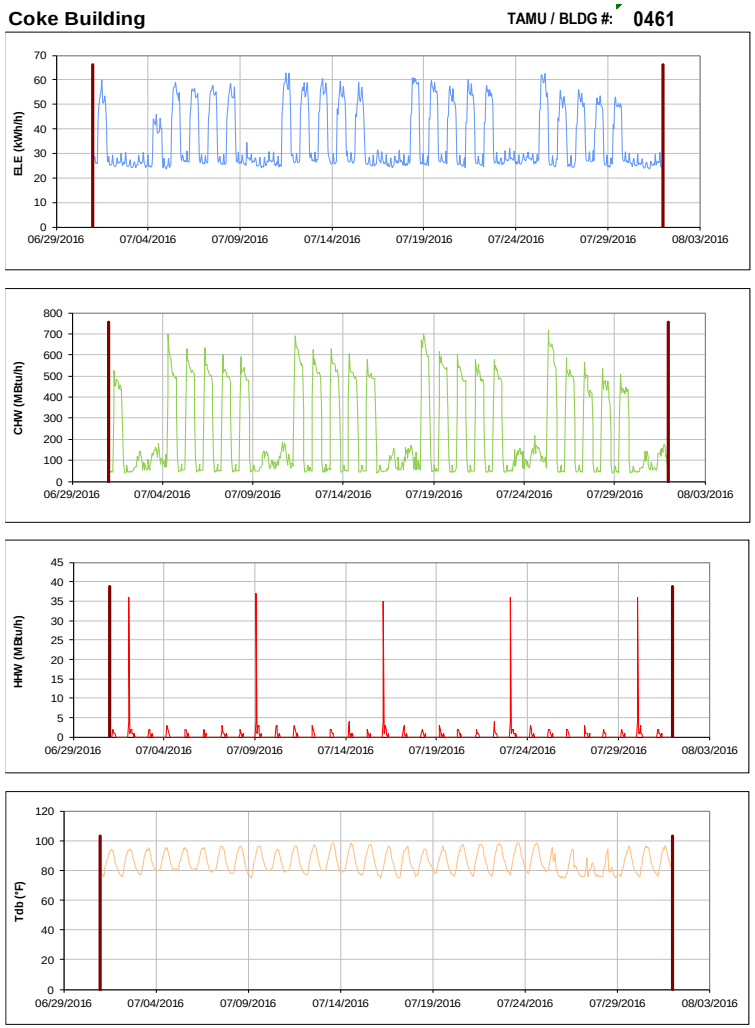


Figure III-69 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Coke Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

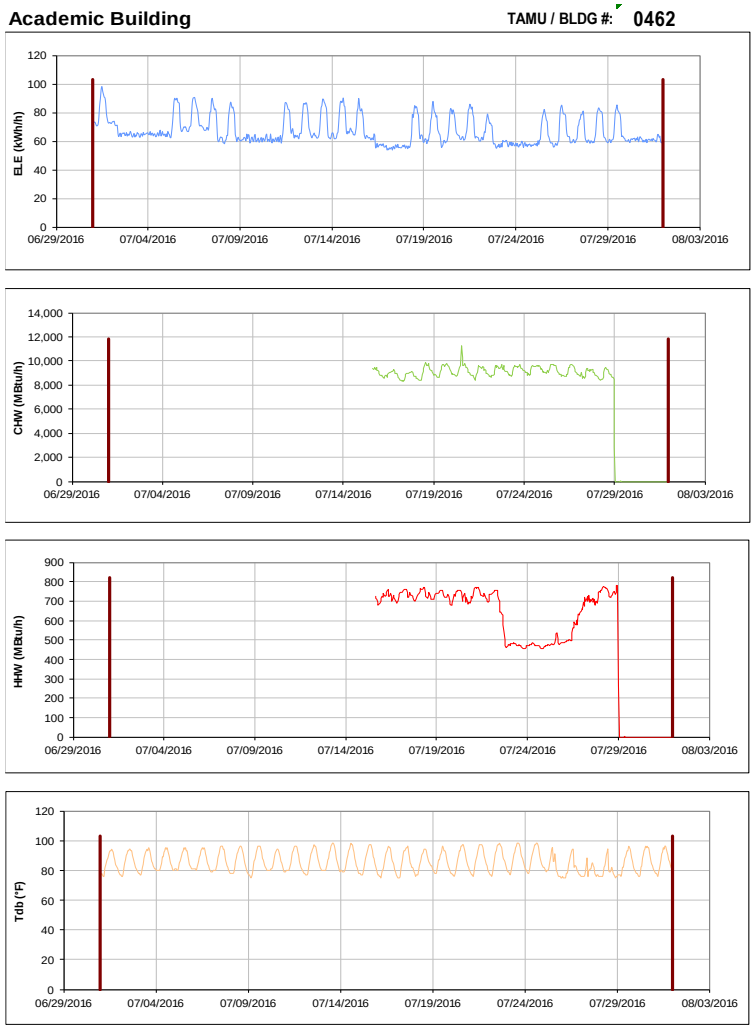


Figure III-70 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Academic Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

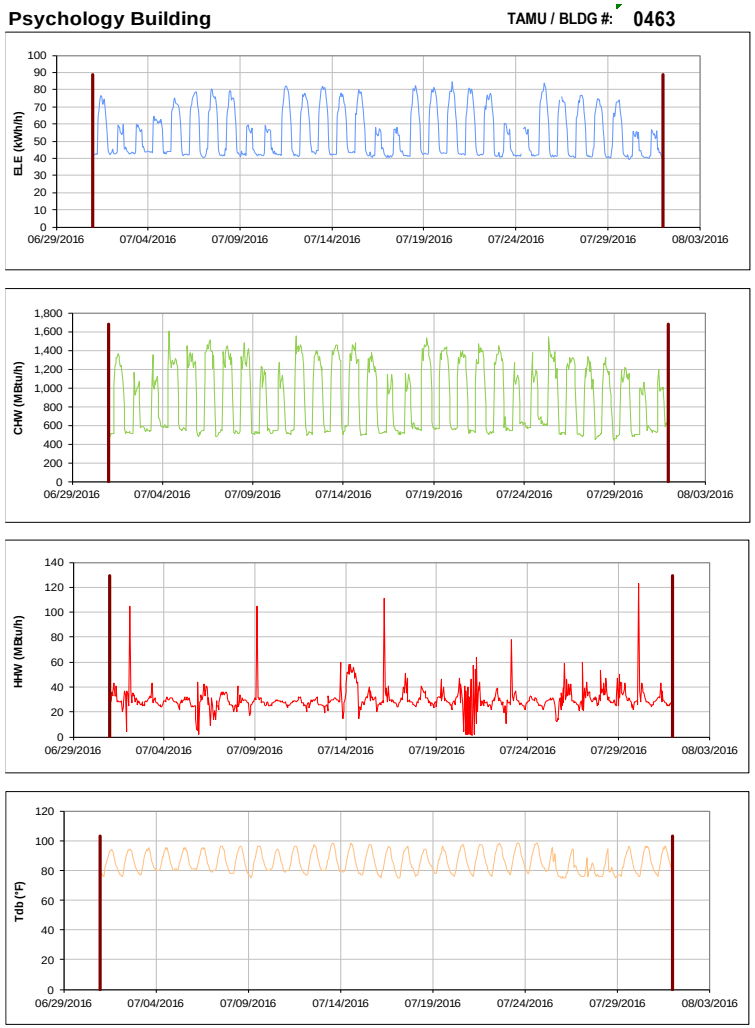


Figure III-71 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Psychology Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

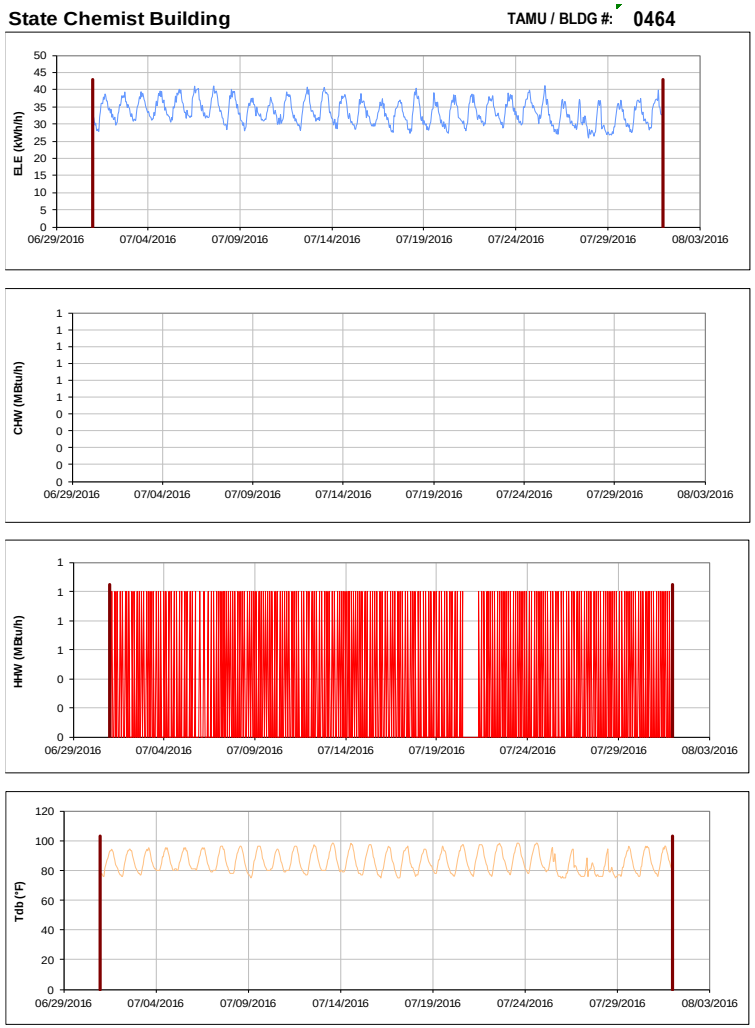


Figure III-72 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for State Chemist Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

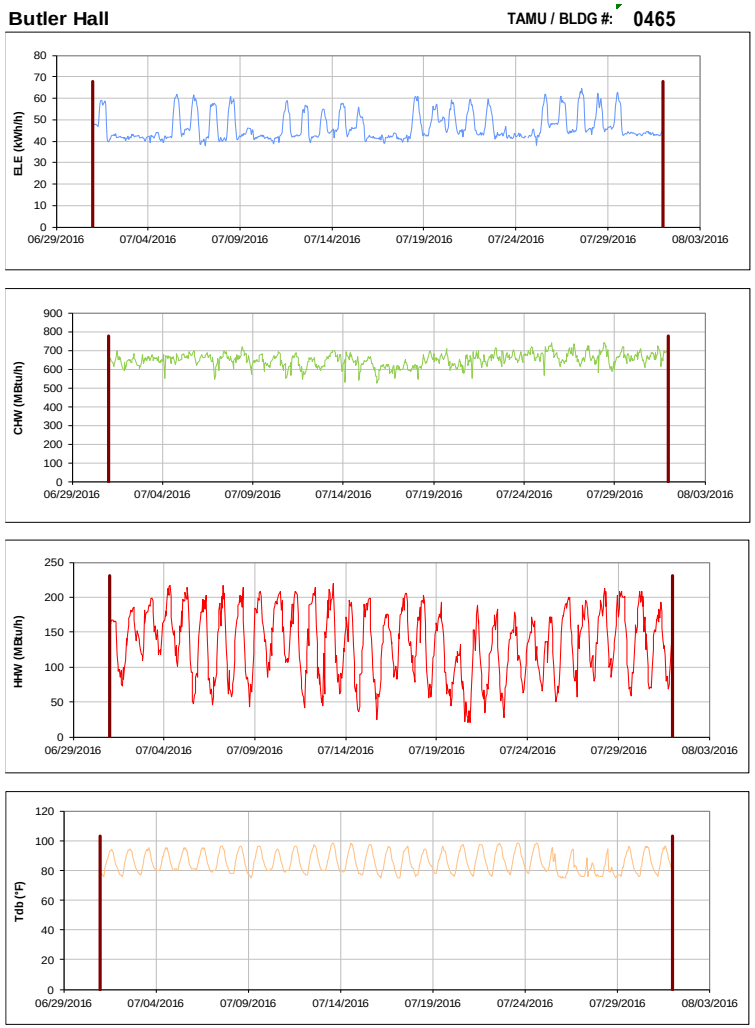


Figure III-73 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Butler Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

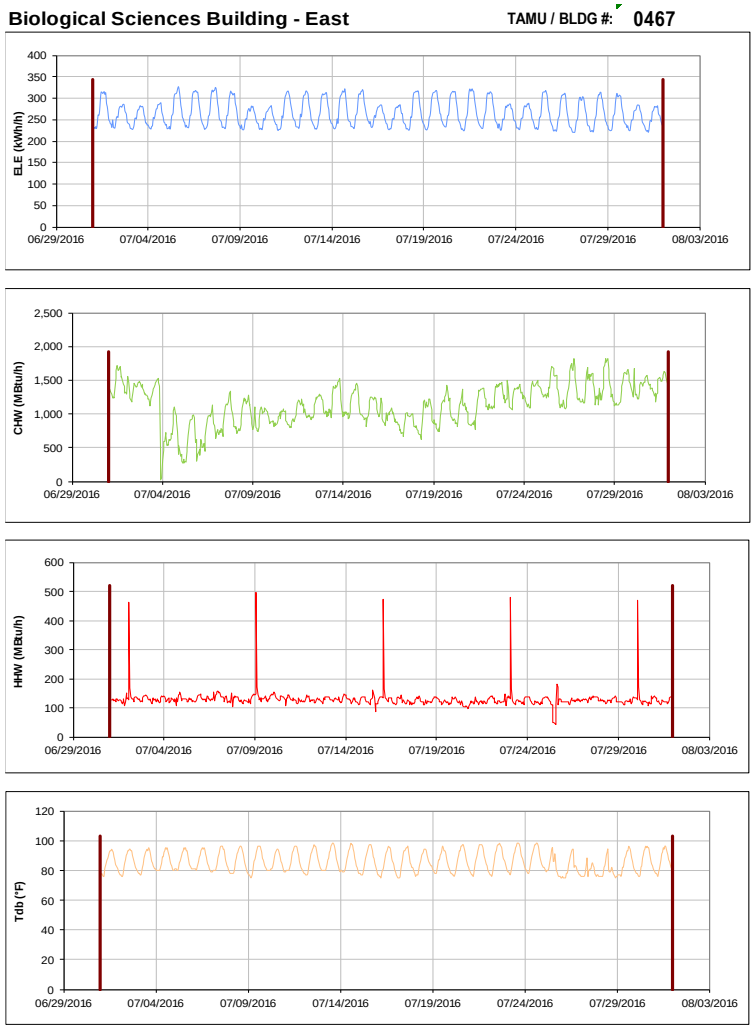


Figure III-74 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Biological Sciences Building - East during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

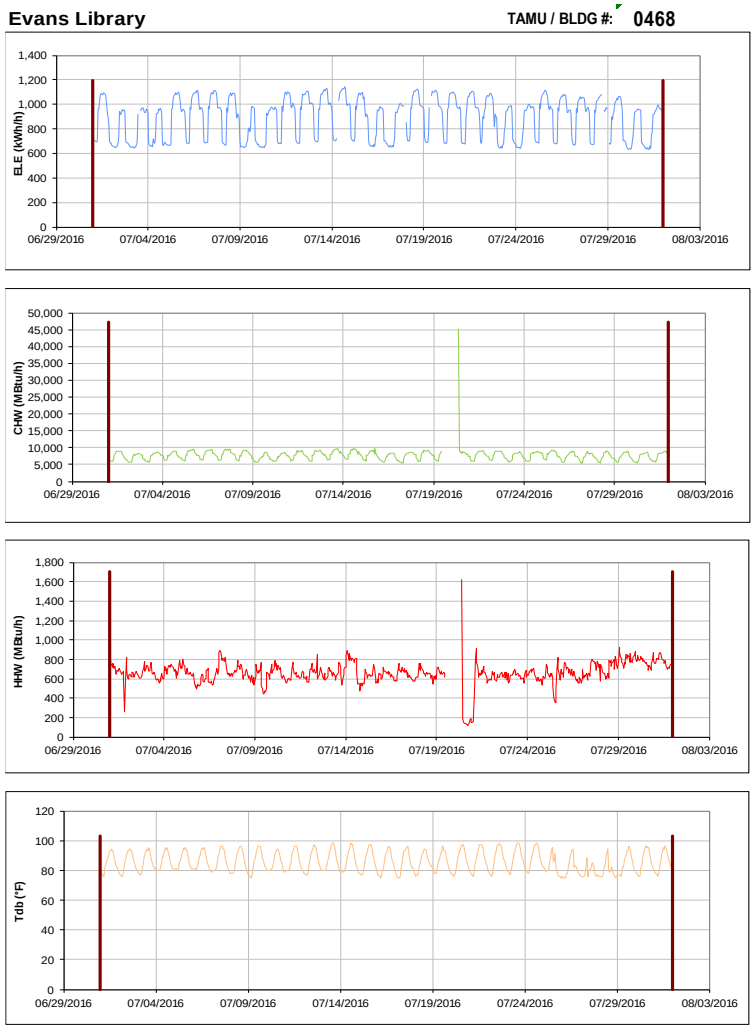


Figure III-75 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Evans Library during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

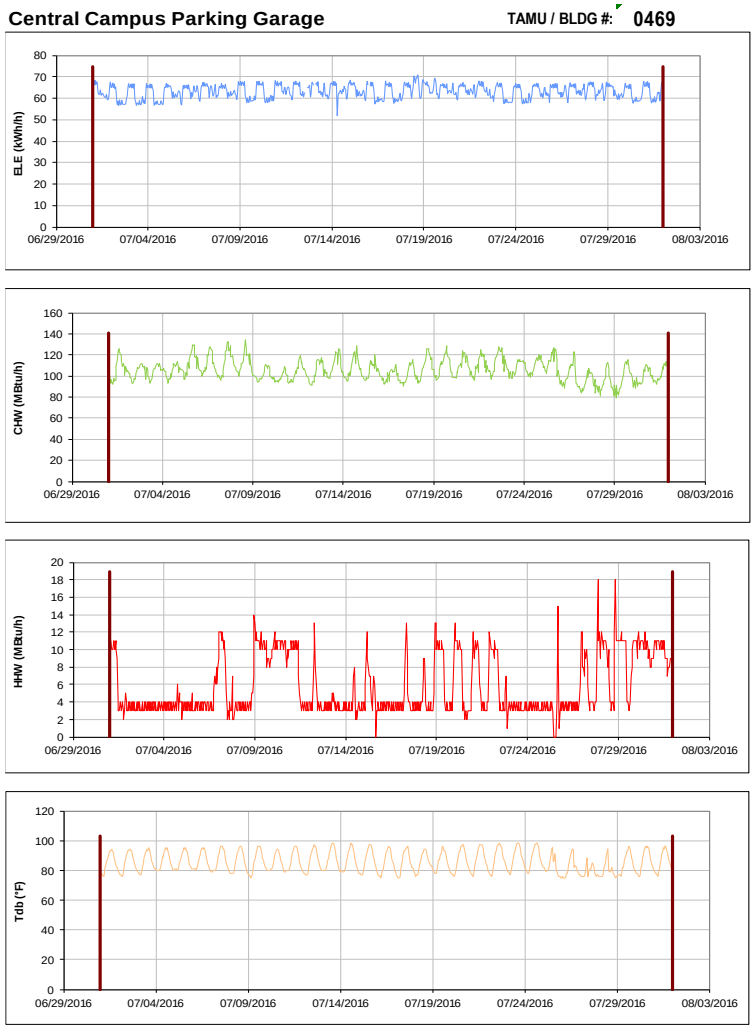


Figure III-76 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Central Campus Parking Garage during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-77 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Glasscock History Bldg during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

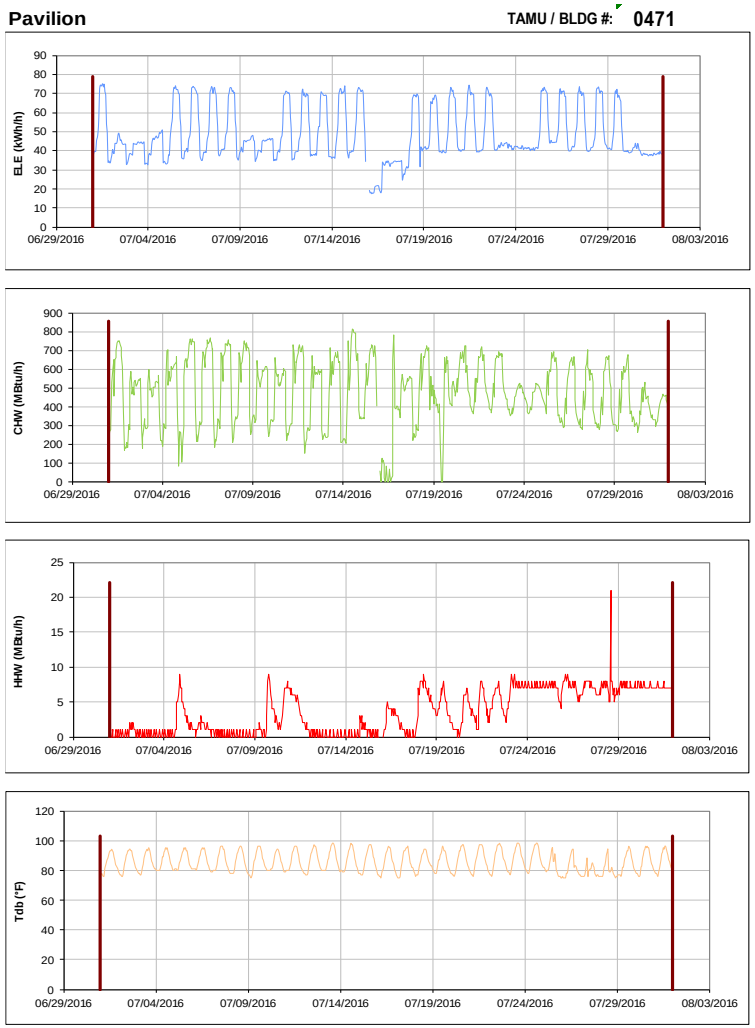


Figure III-78 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Pavilion during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

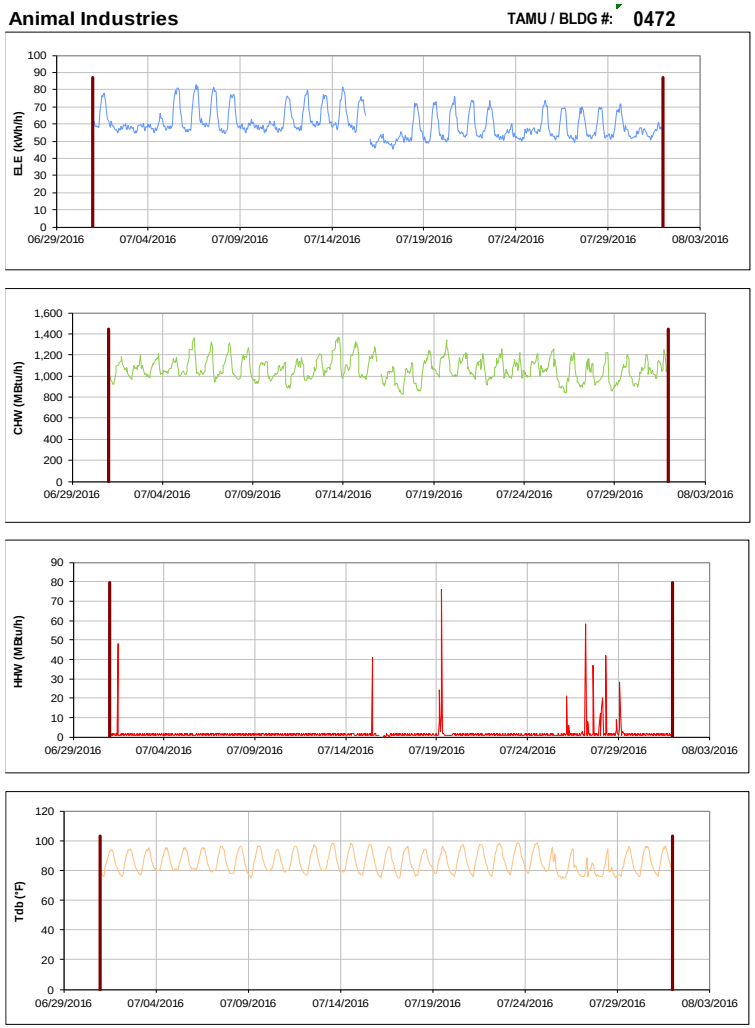


Figure III-79 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Animal Industries during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

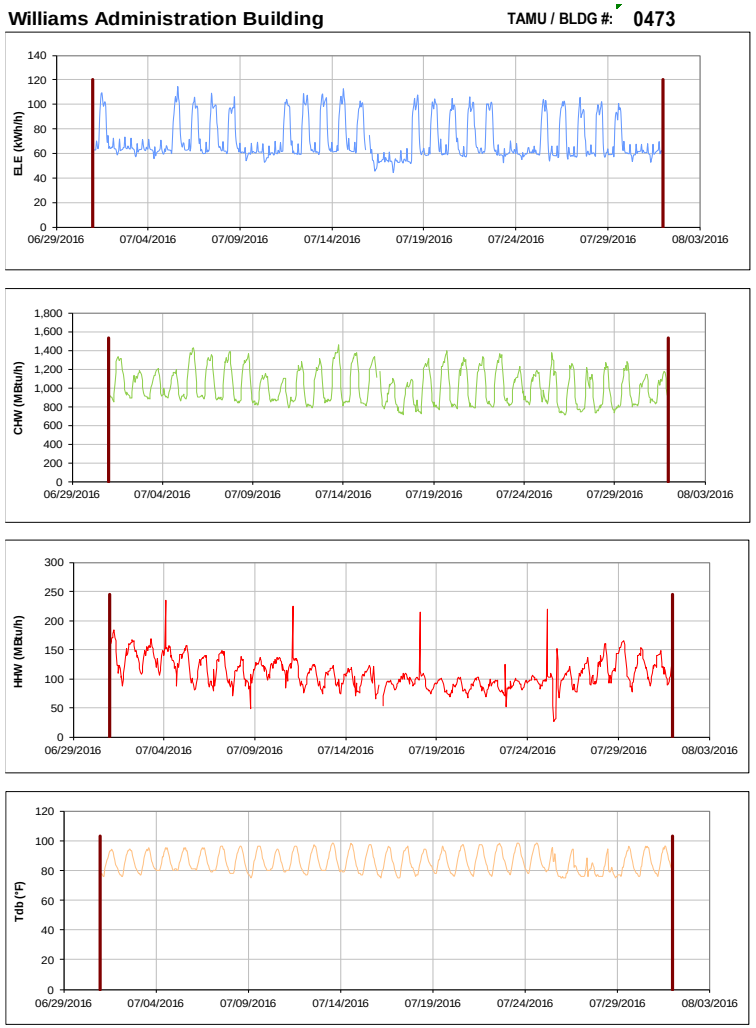


Figure III-80 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Williams Administration Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-81 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for YMCA Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

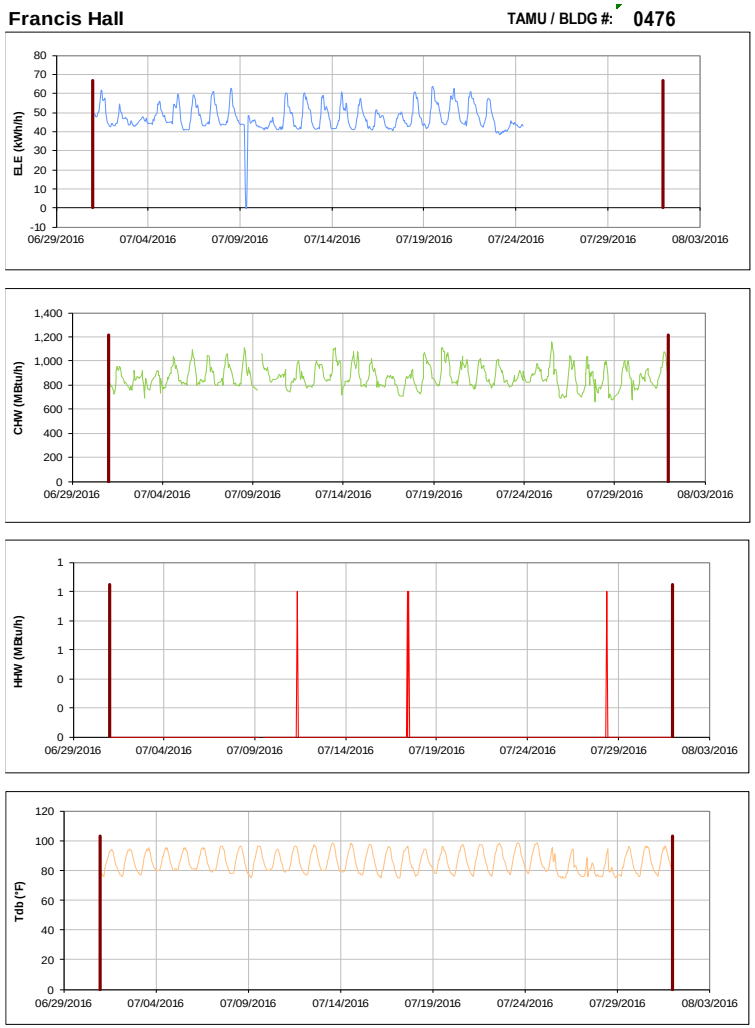


Figure III-82 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Francis Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

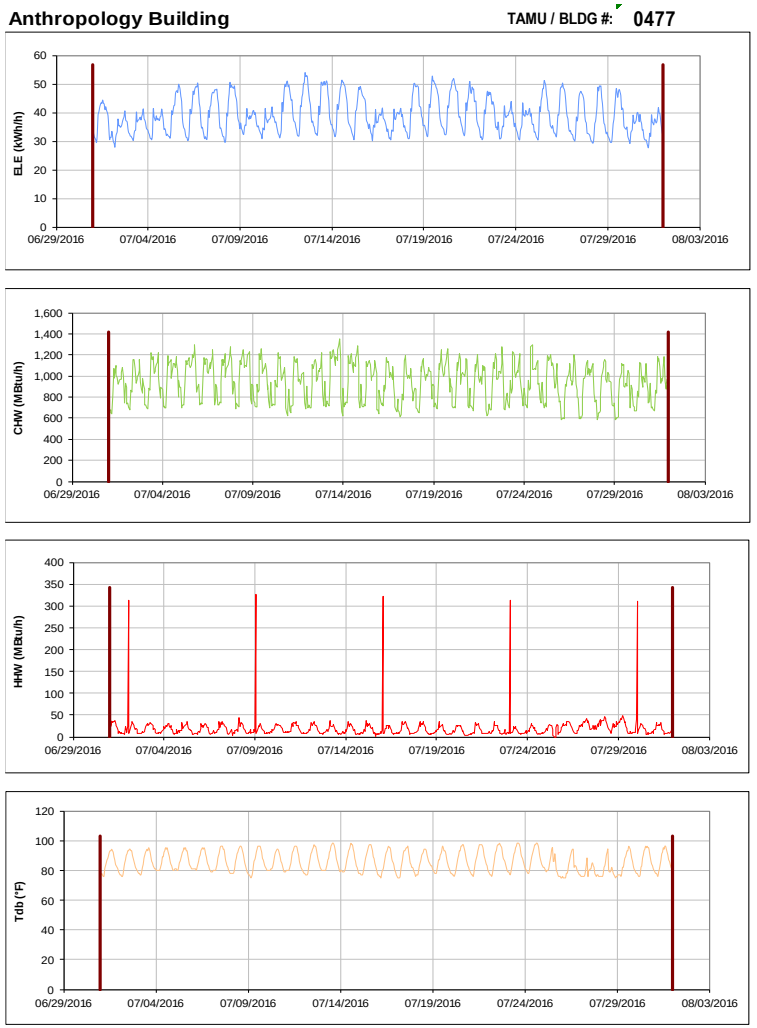


Figure III-83 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Anthropology Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

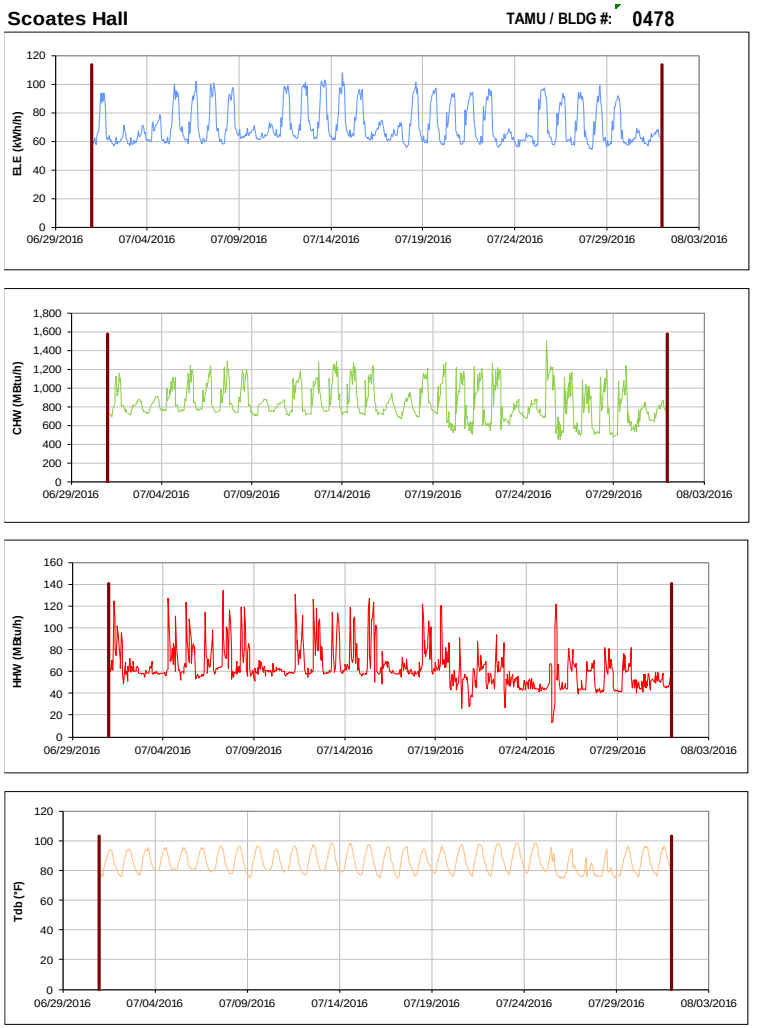


Figure III-84 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Scoates Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

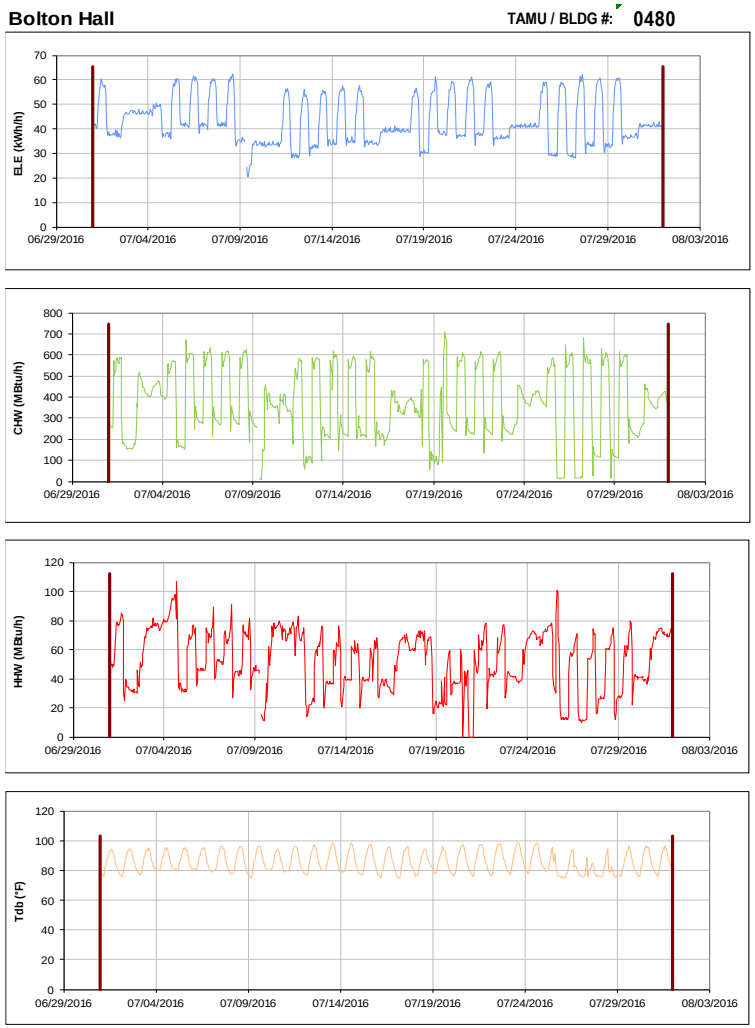


Figure III-85 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Bolton Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

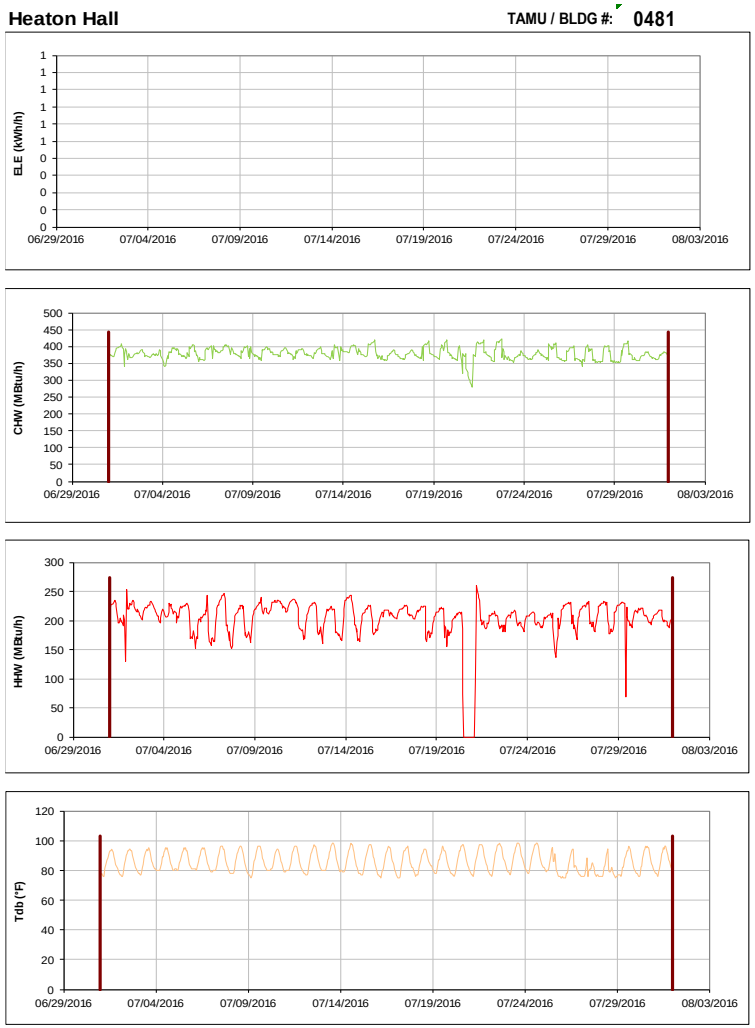


Figure III-86 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Heaton Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

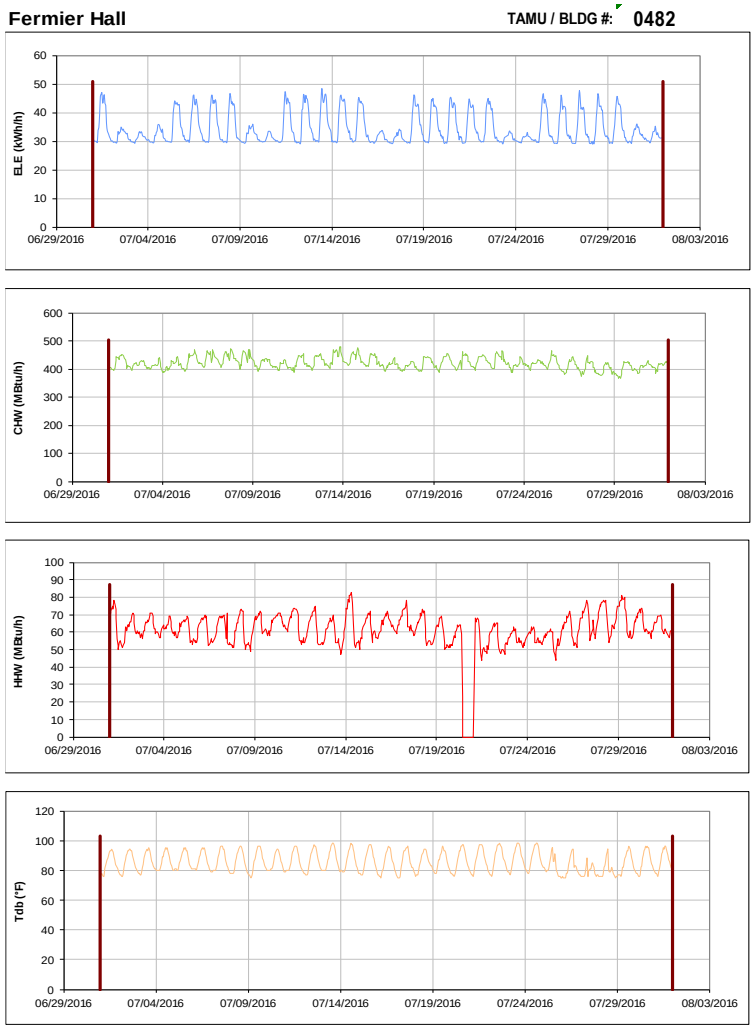


Figure III-87 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Fermier Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-88 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Thompson Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

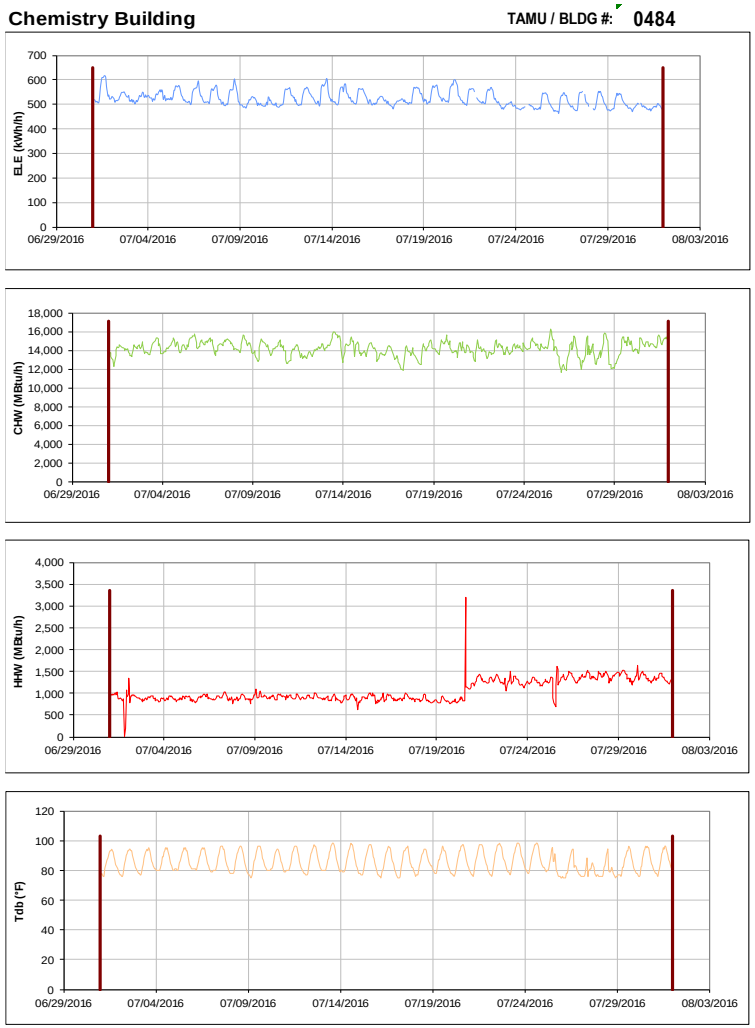


Figure III-89 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Chemistry Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

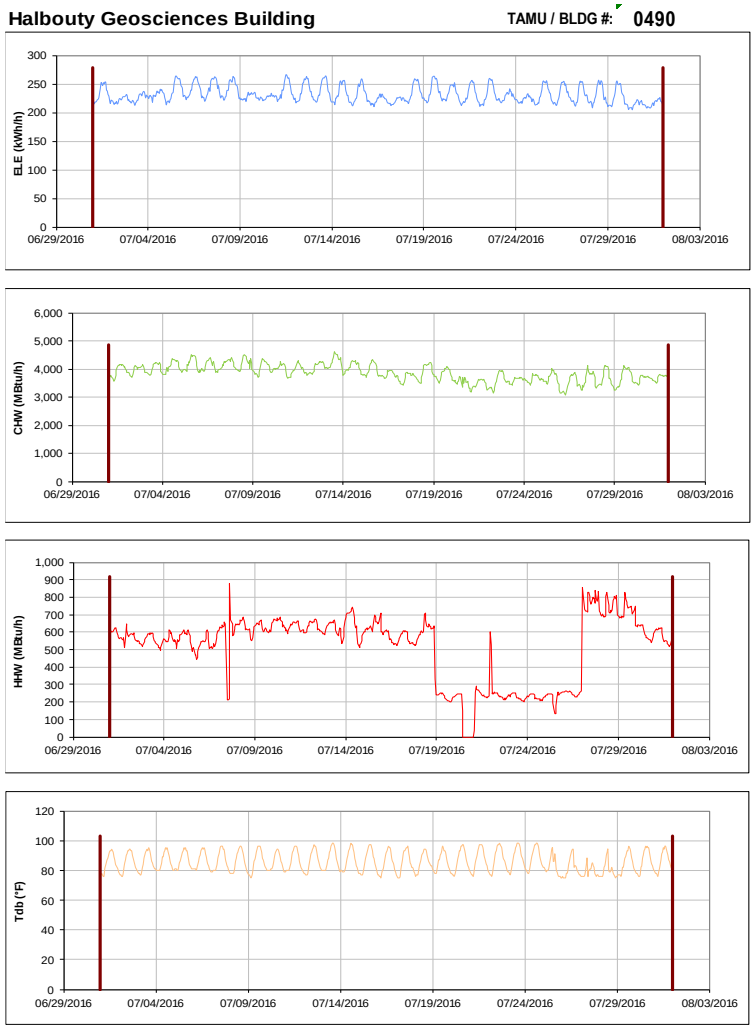


Figure III-90 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Halbouty Geosciences Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

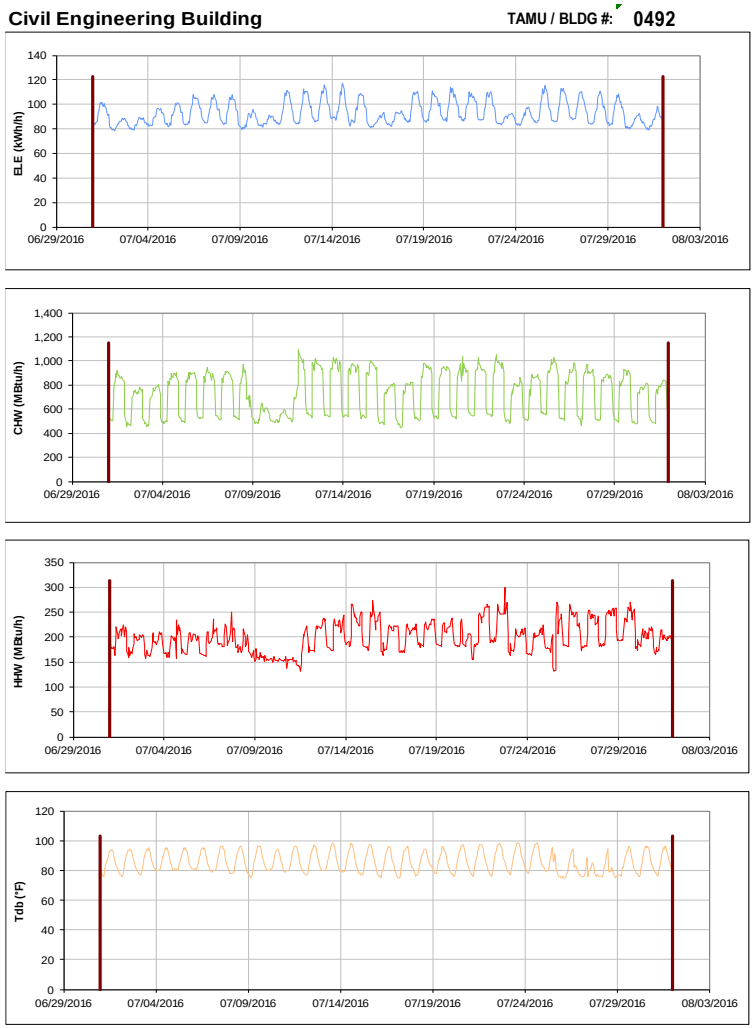


Figure III-91 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Civil Engineering Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

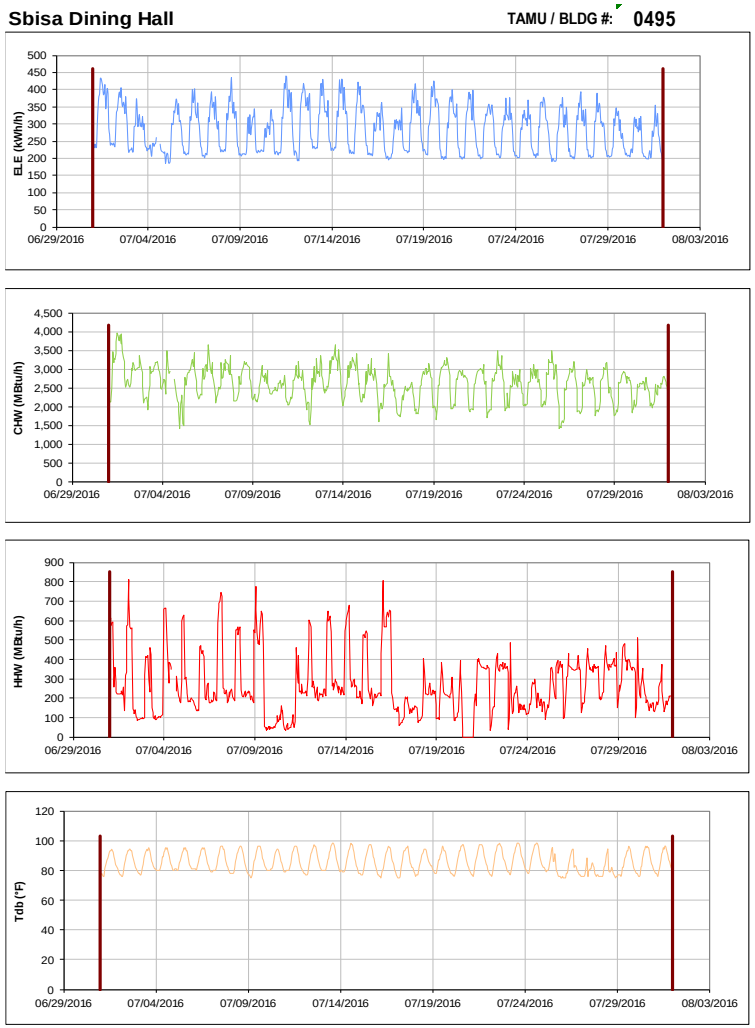


Figure III-92 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Sbisa Dining Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

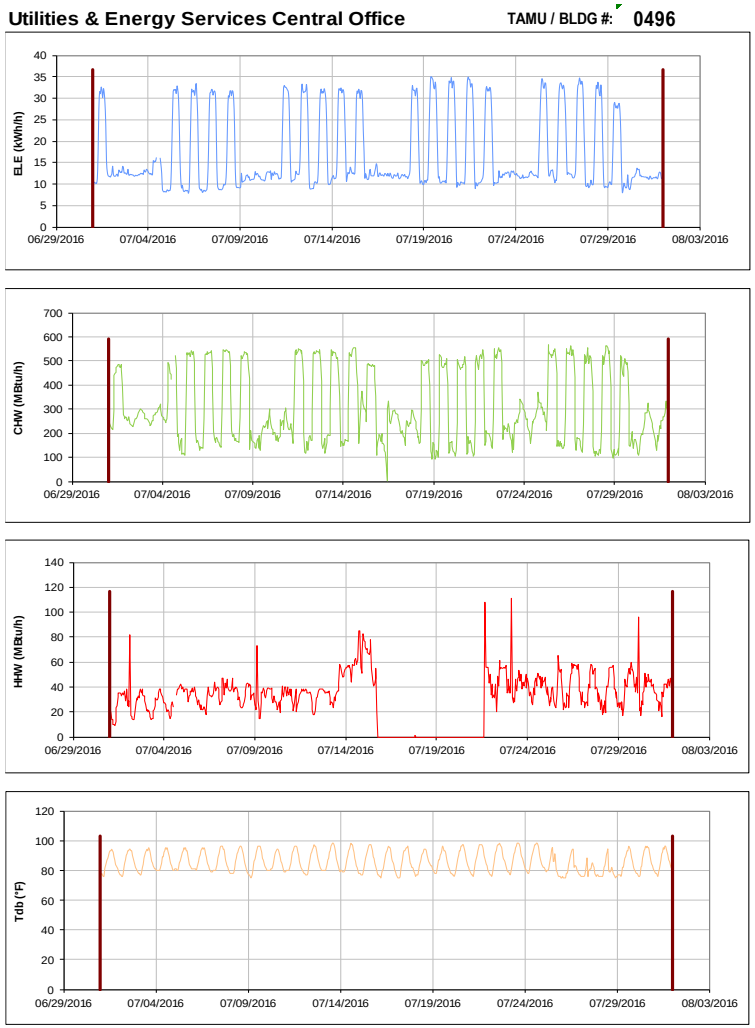


Figure III-93 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Utilities & Energy Services Central Office during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

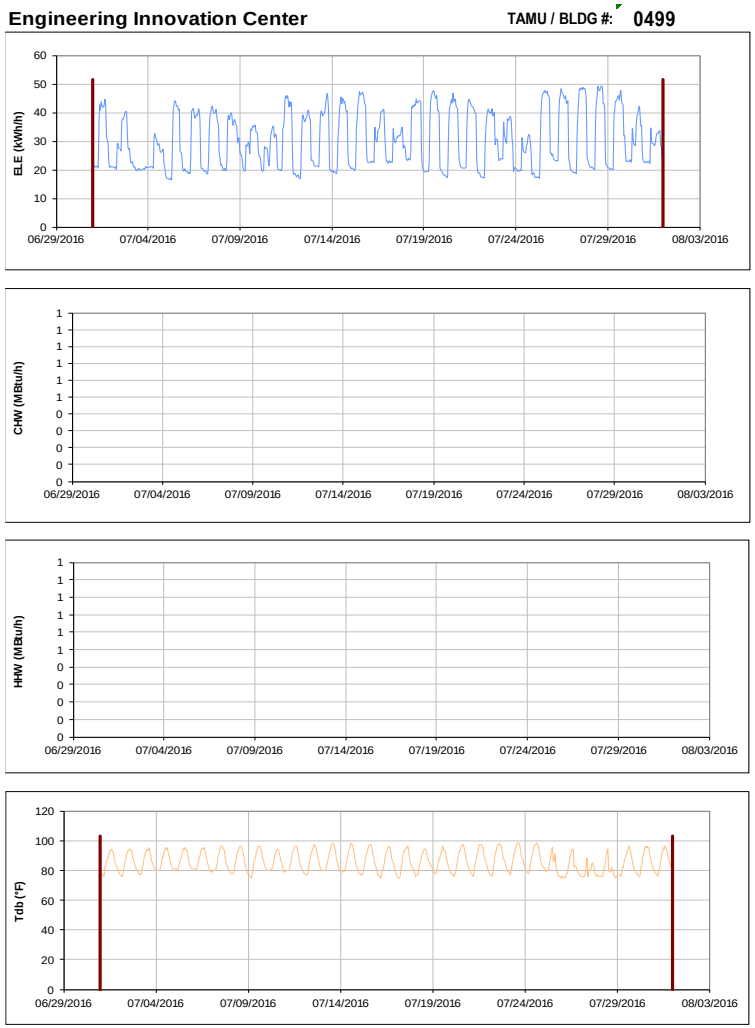


Figure III-94 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Engineering Innovation Center during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

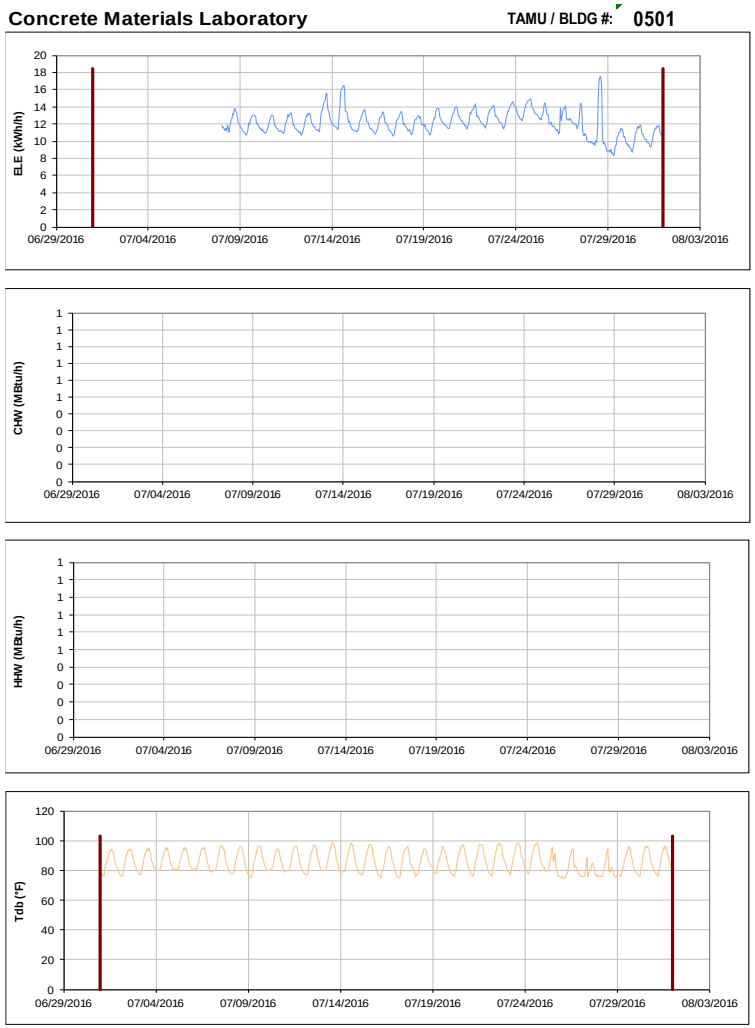


Figure III-95 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Concrete Materials Laboratory during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

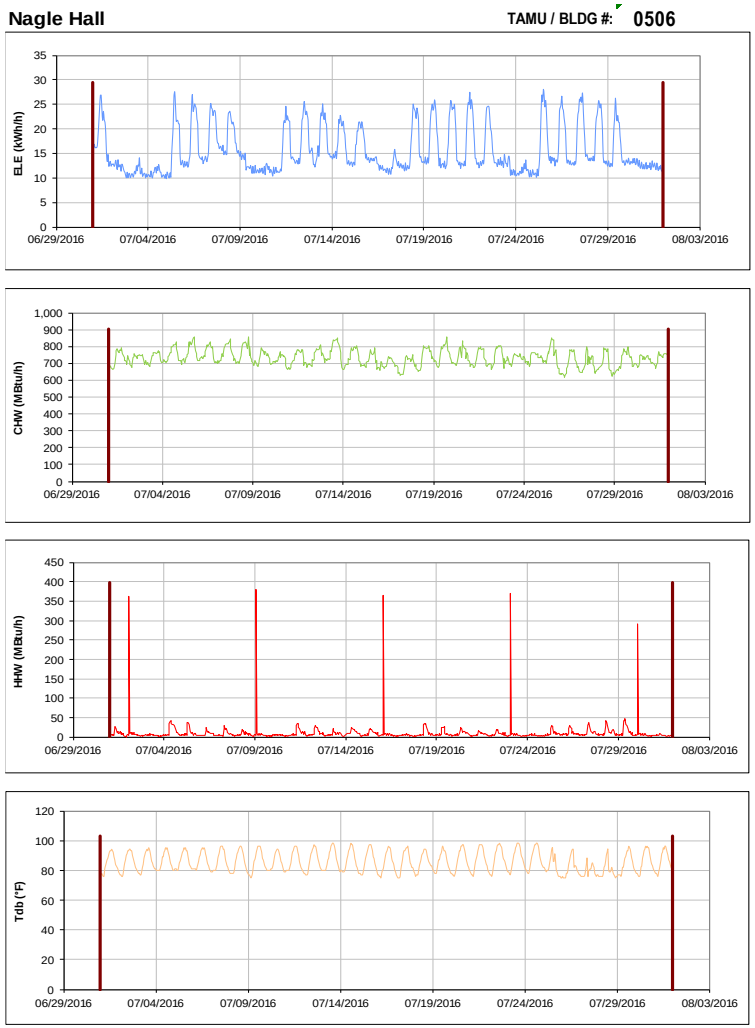


Figure III-96 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Nagle Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

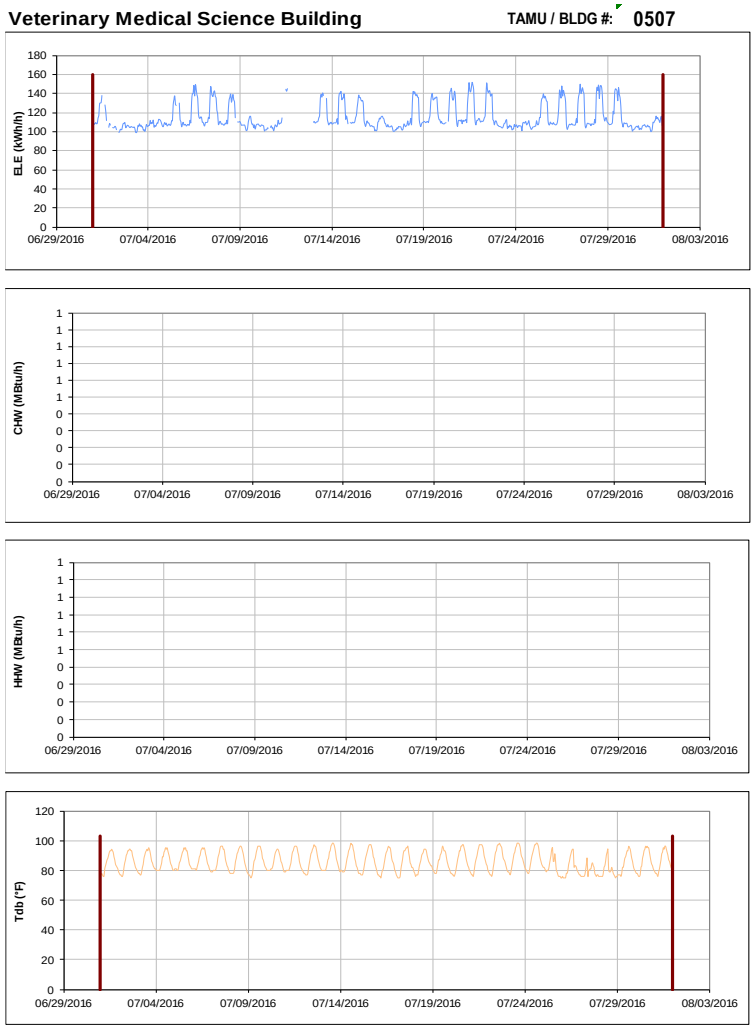


Figure III-97 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Medical Science Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

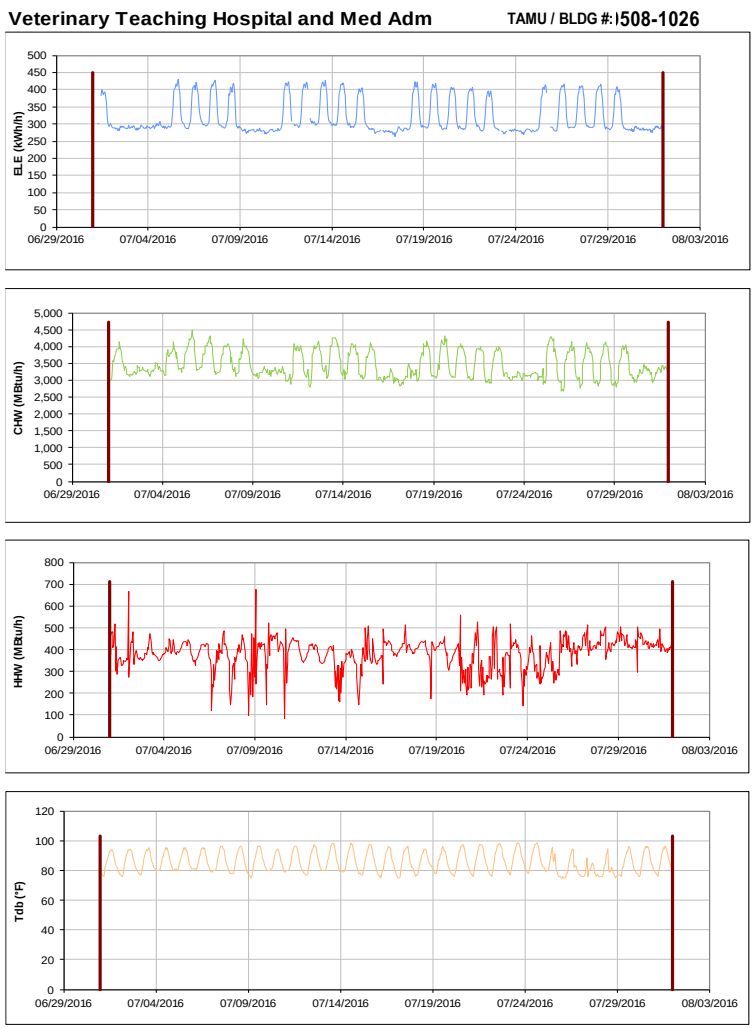


Figure III-98 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Teaching Hospital and Med Adm during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

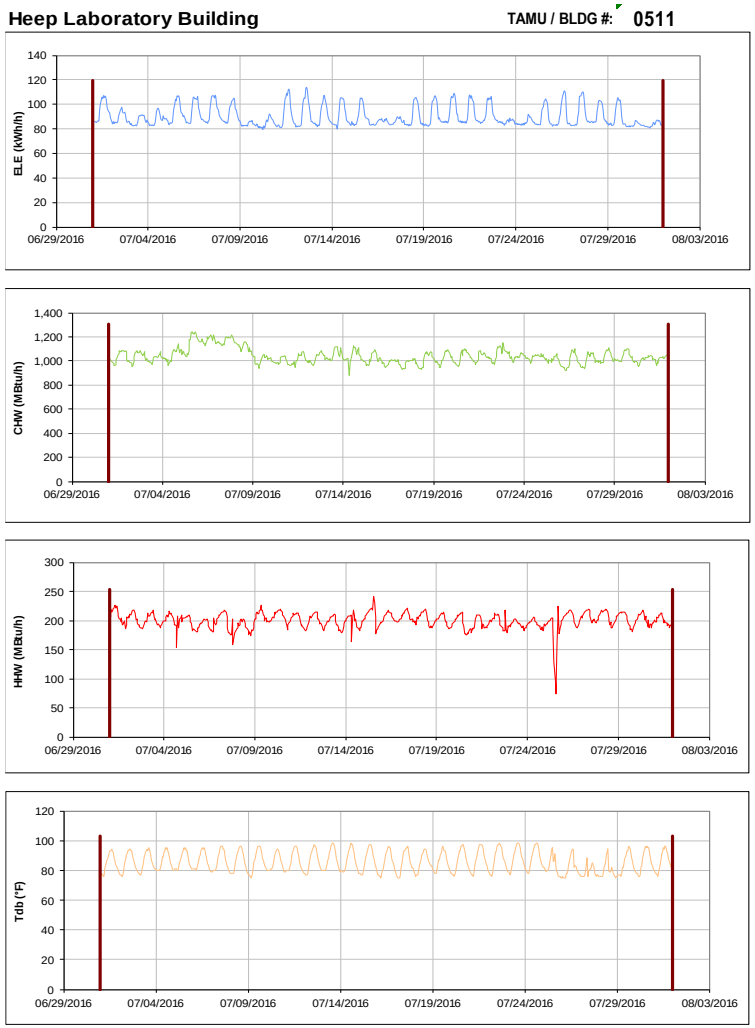


Figure III-99 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Heep Laboratory Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

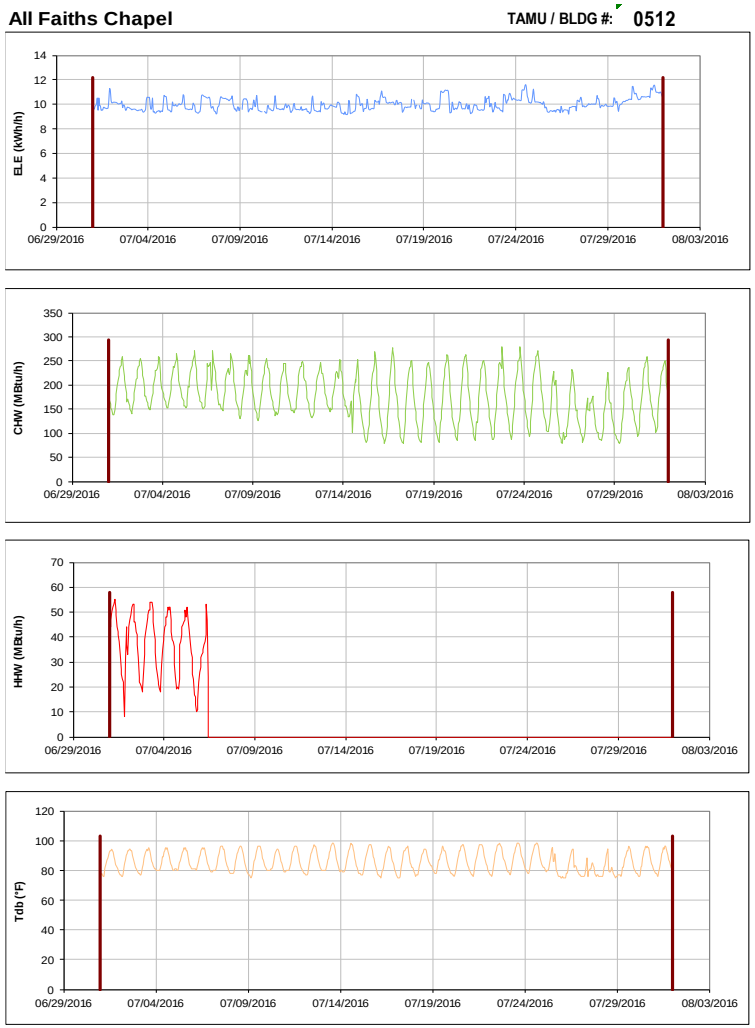


Figure III-100 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for All Faiths Chapel during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

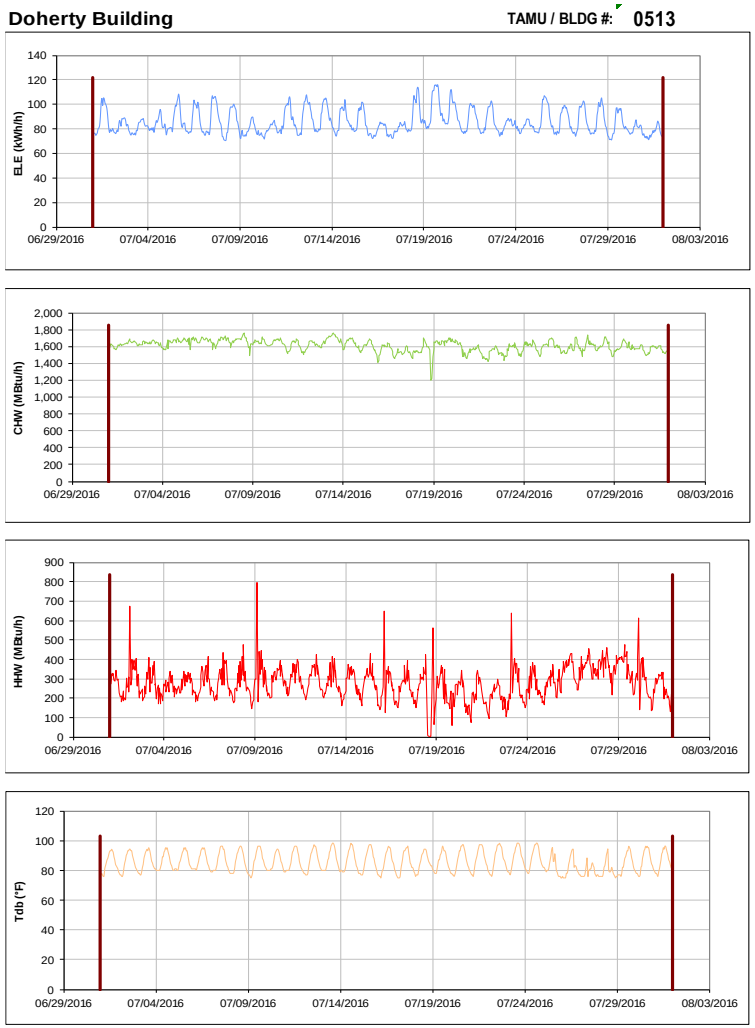


Figure III-101 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Doherty Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

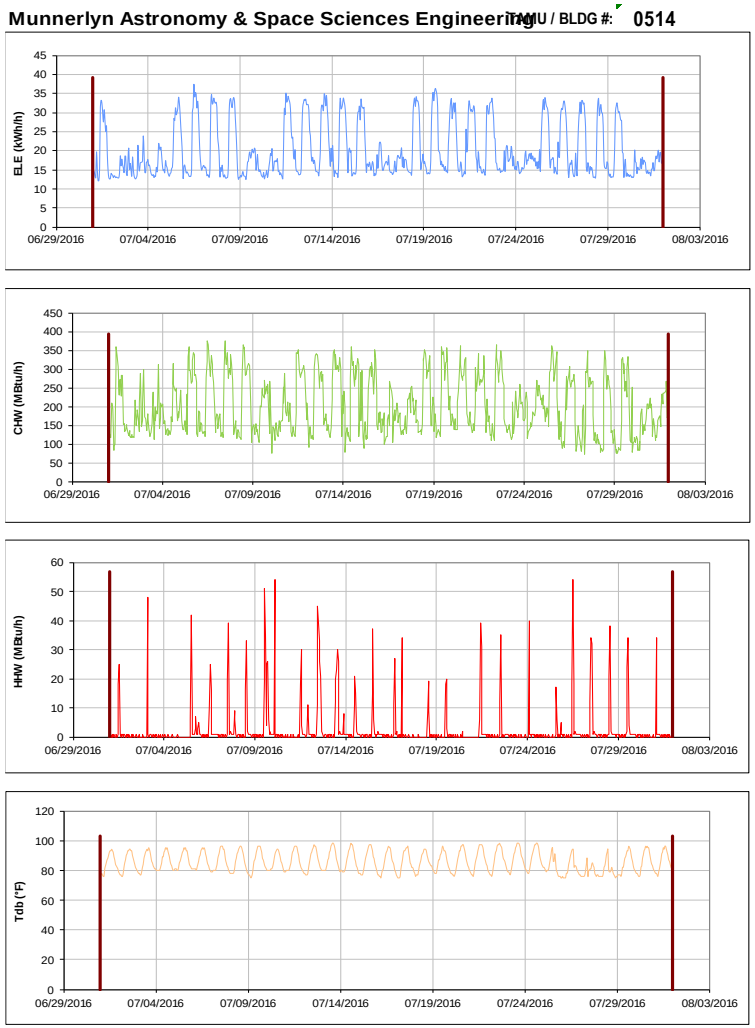


Figure III-102 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Munnerlyn Astronomy & Space Sciences Engineering during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

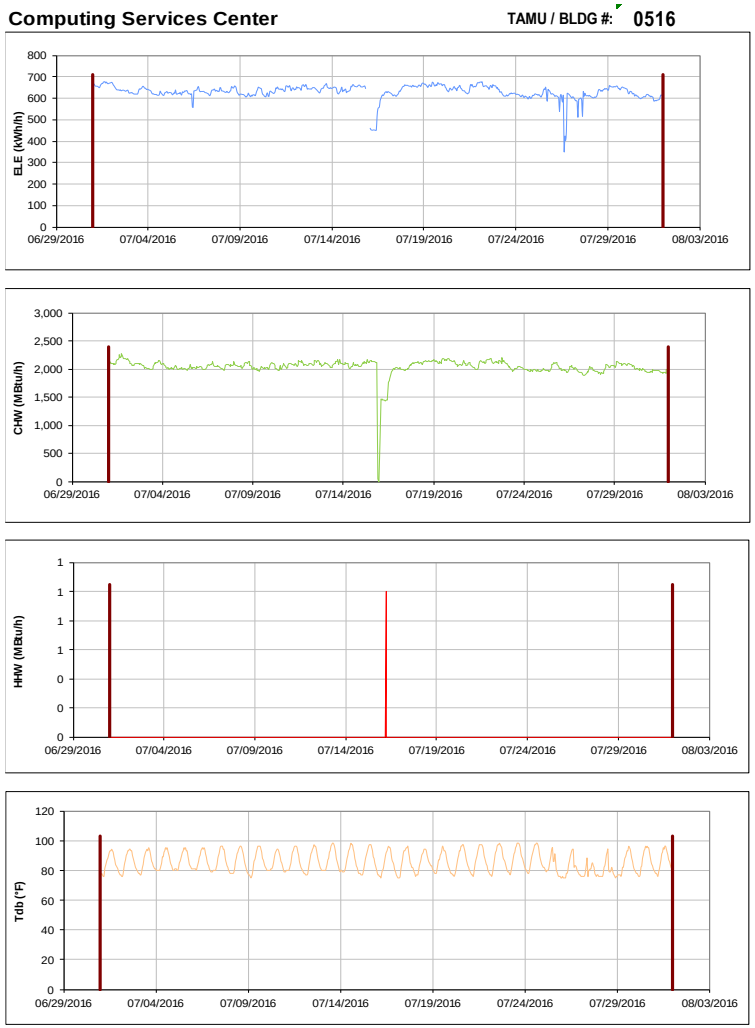


Figure III-103 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Computing Services Center during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

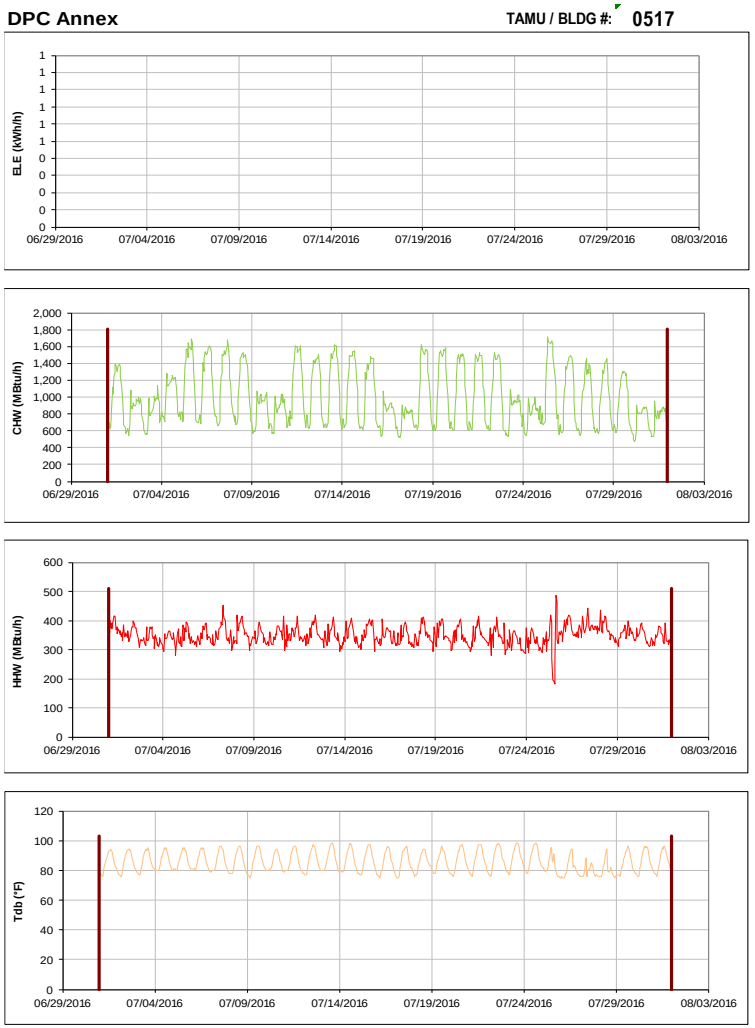


Figure III-104 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for DPC Annex during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

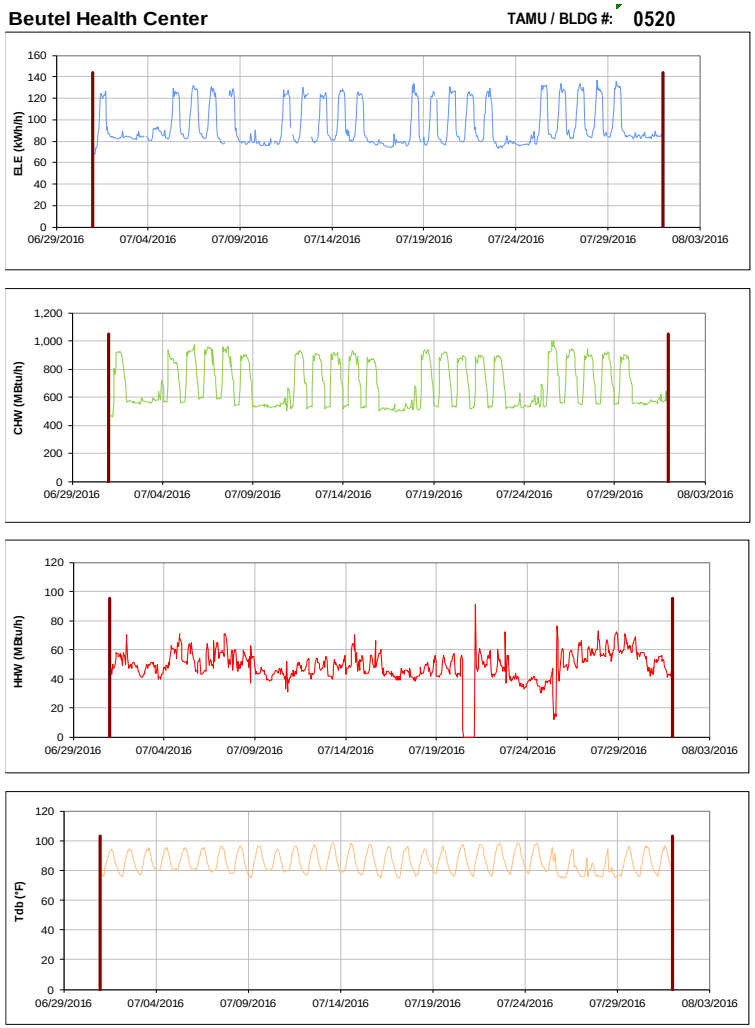


Figure III-105 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Beutel Health Center during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

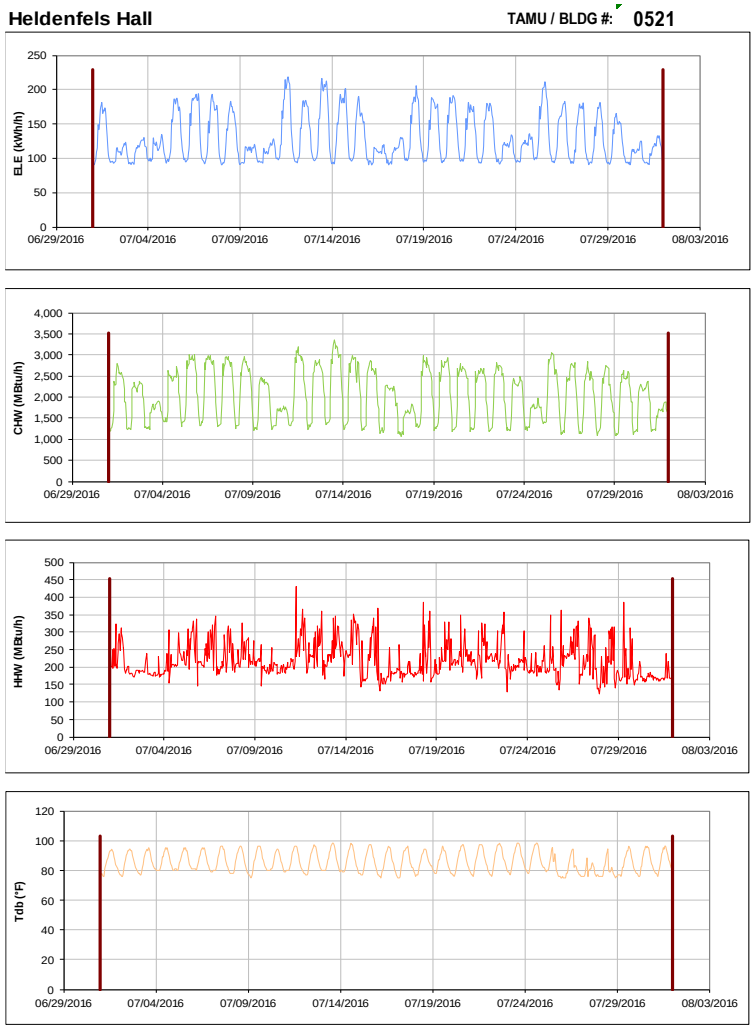


Figure III-106 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Heldenfels Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

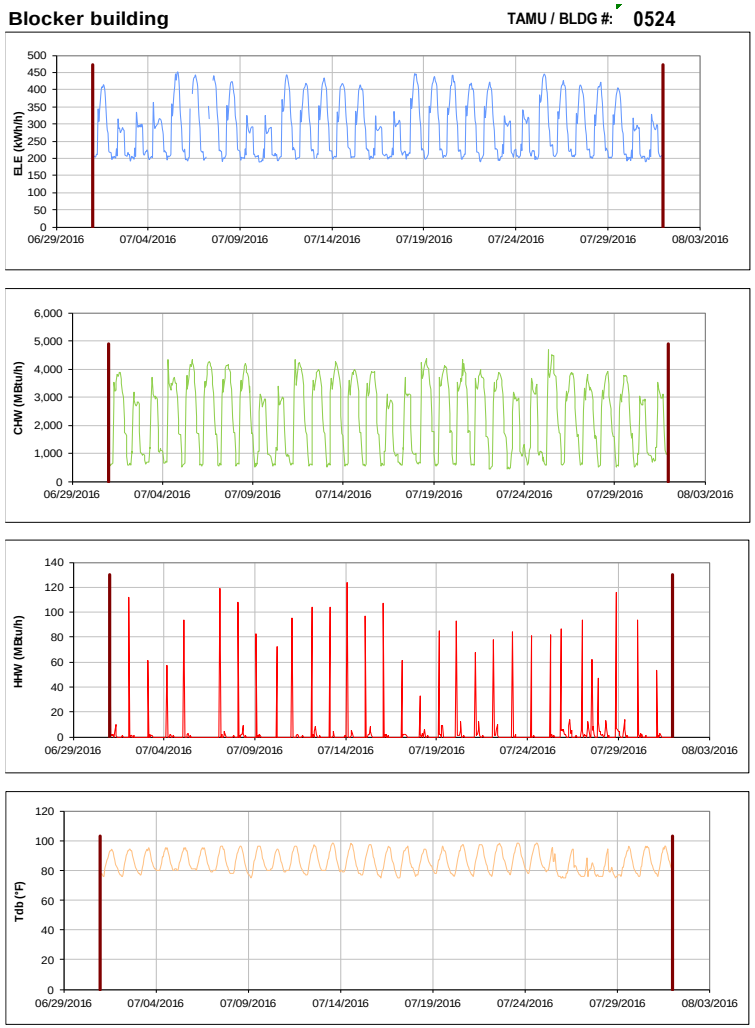


Figure III-107 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Blocker building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

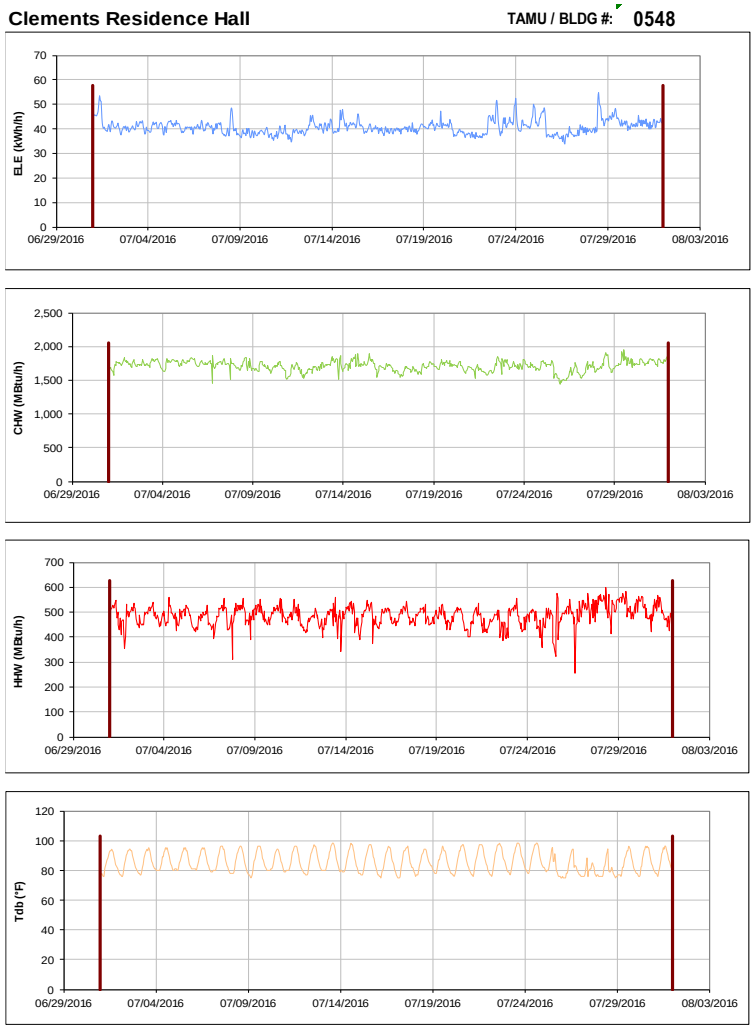


Figure III-108 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Clements Residence Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

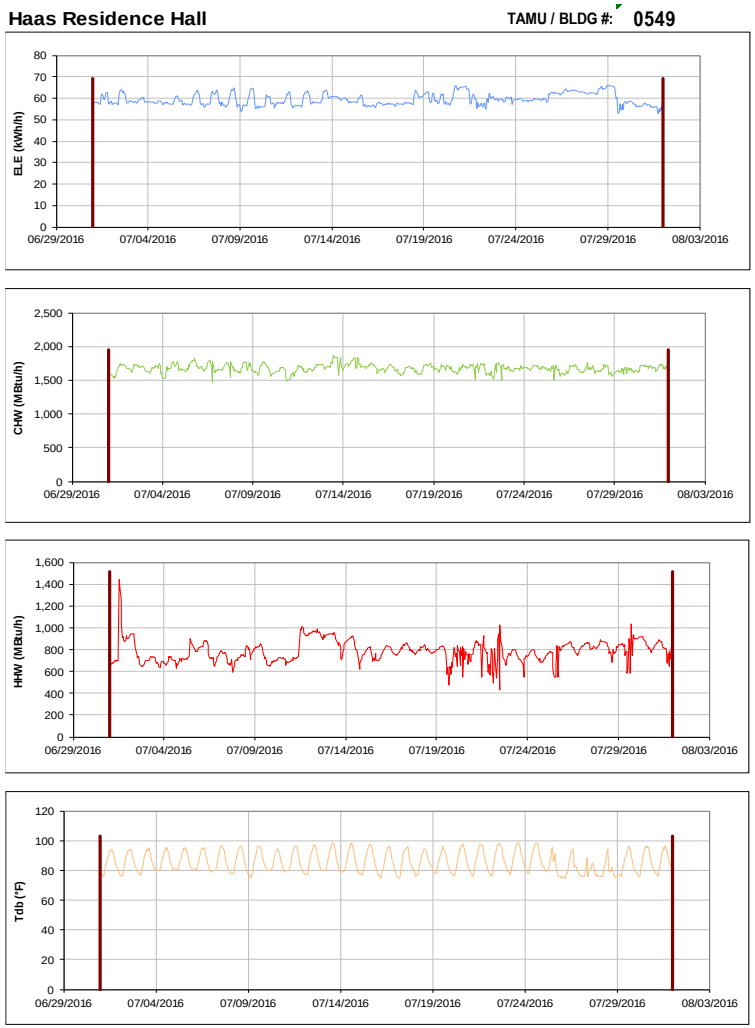


Figure III-109 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Haas Residence Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

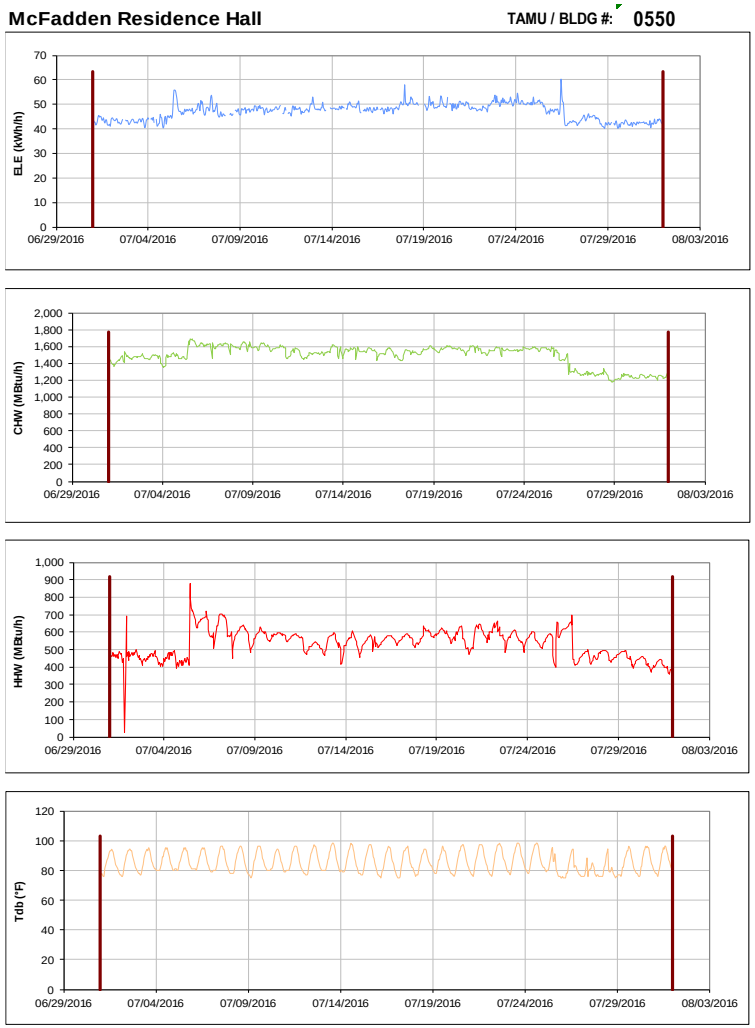


Figure III-110 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for McFadden Residence Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

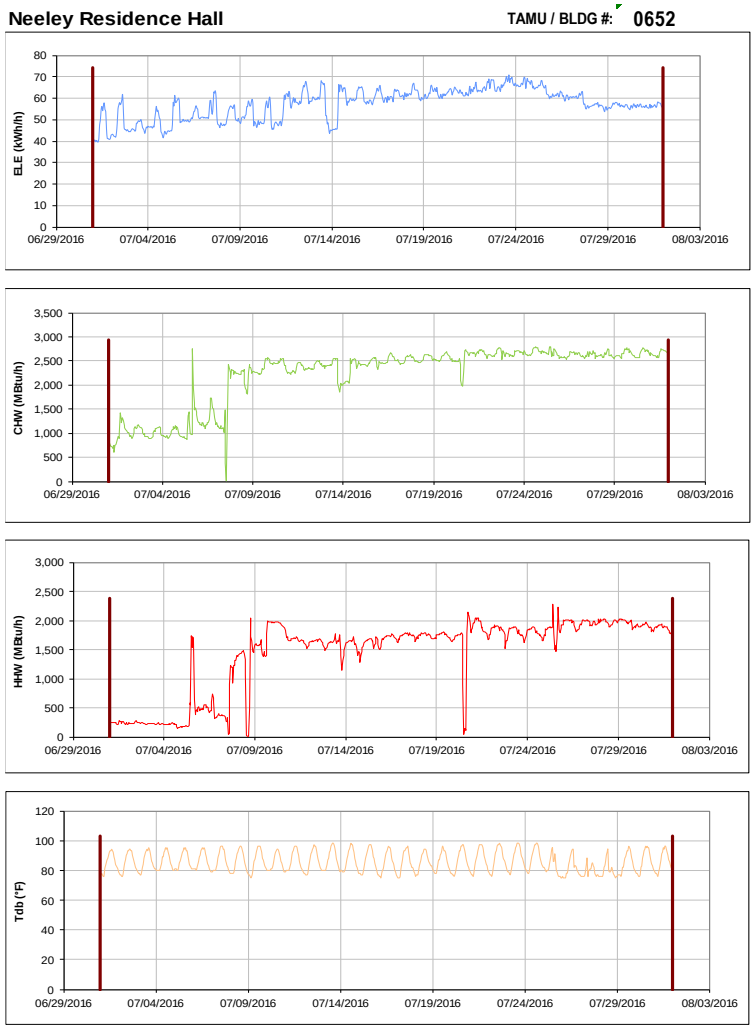


Figure III-111 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Neeley Residence Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

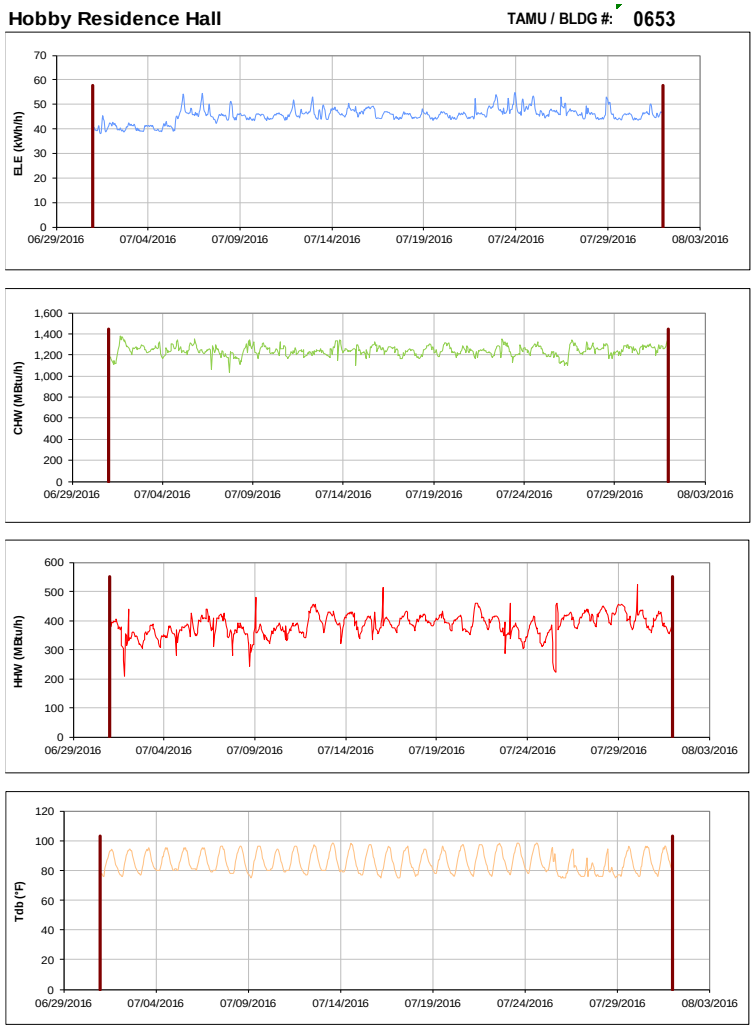


Figure III-112 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Hobby Residence Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

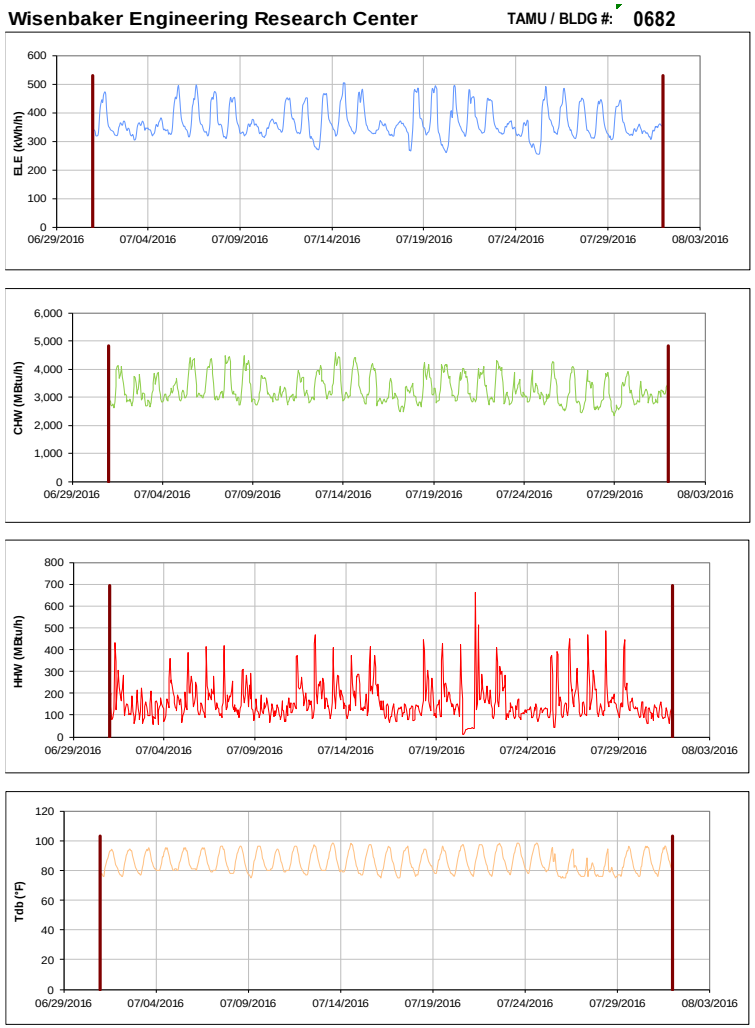


Figure III-113 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Wisenbaker Engineering Research Center during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

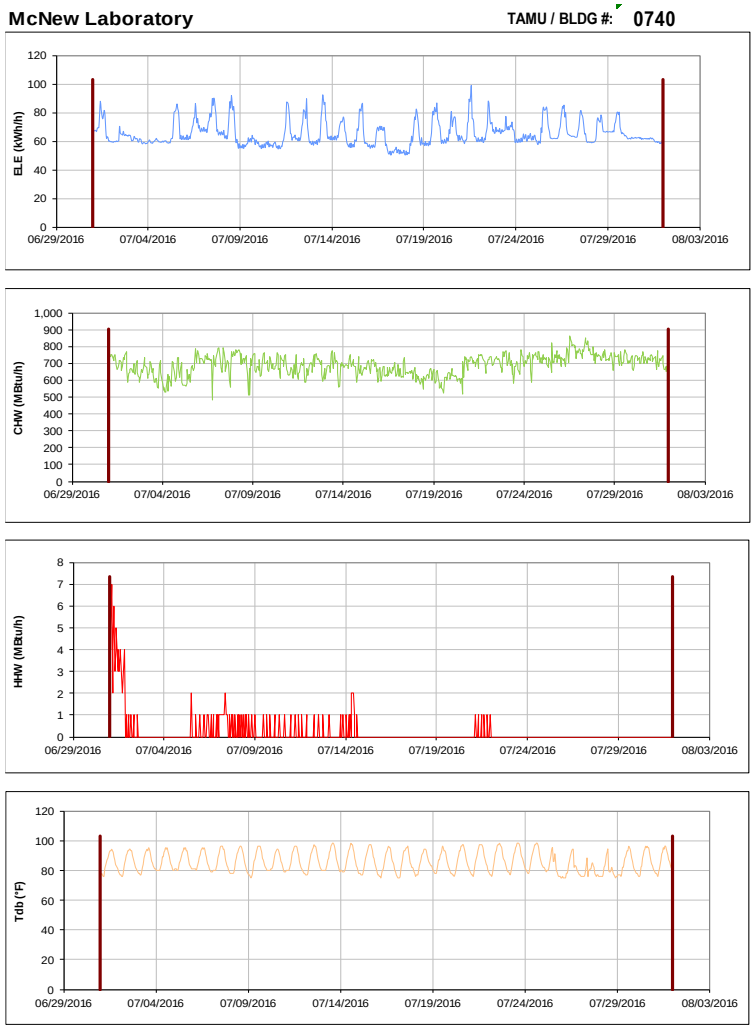


Figure III-114 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for McNew Laboratory during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

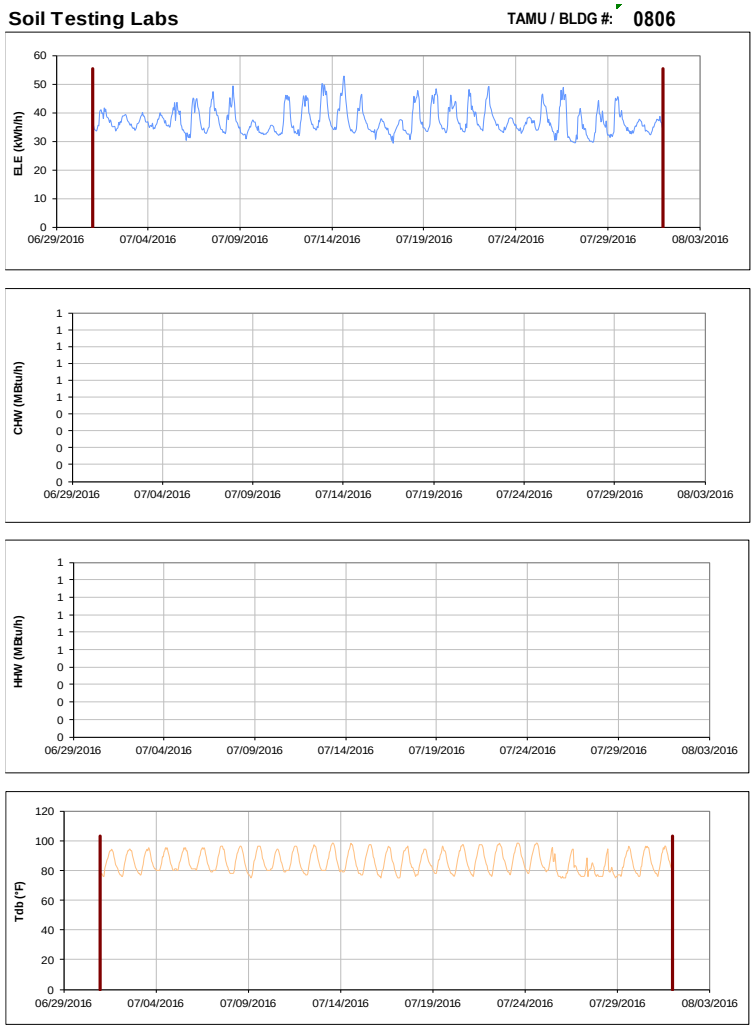


Figure III-115 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Soil Testing Labs during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

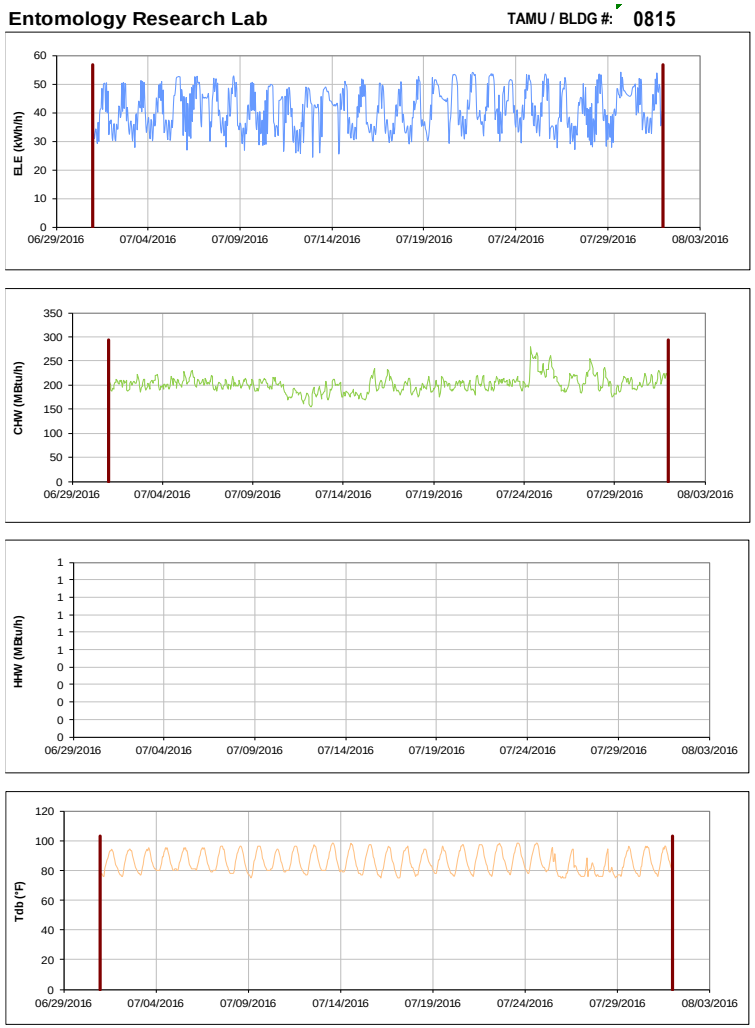


Figure III-116 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Entomology Research Lab during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

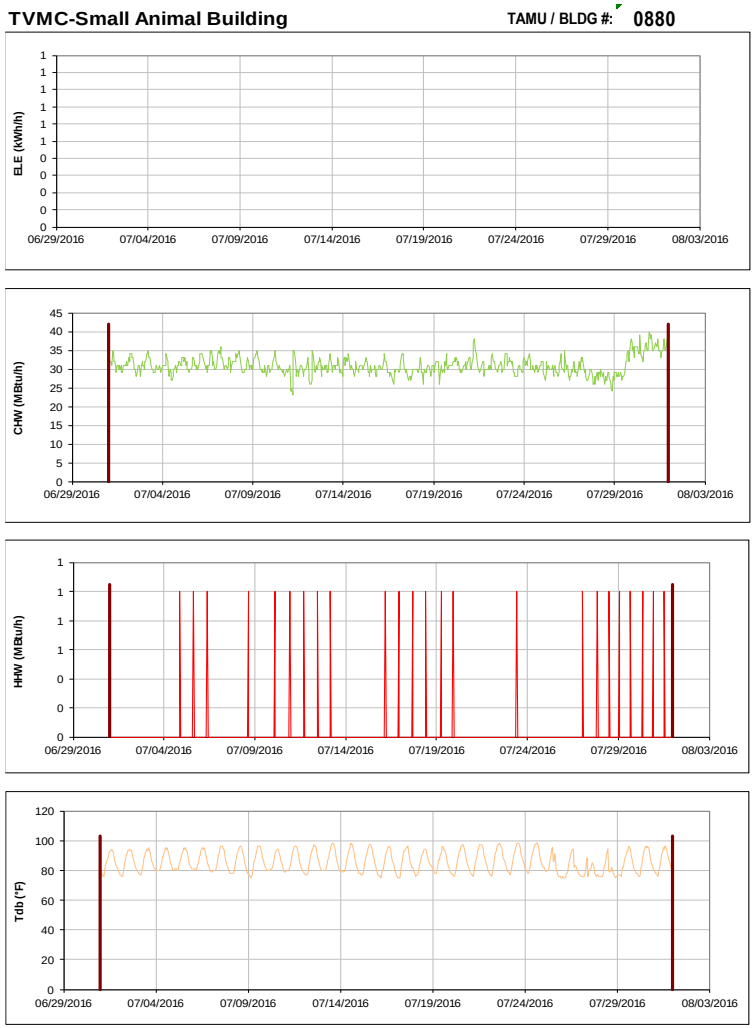


Figure III-117 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for TVMC-Small Animal Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

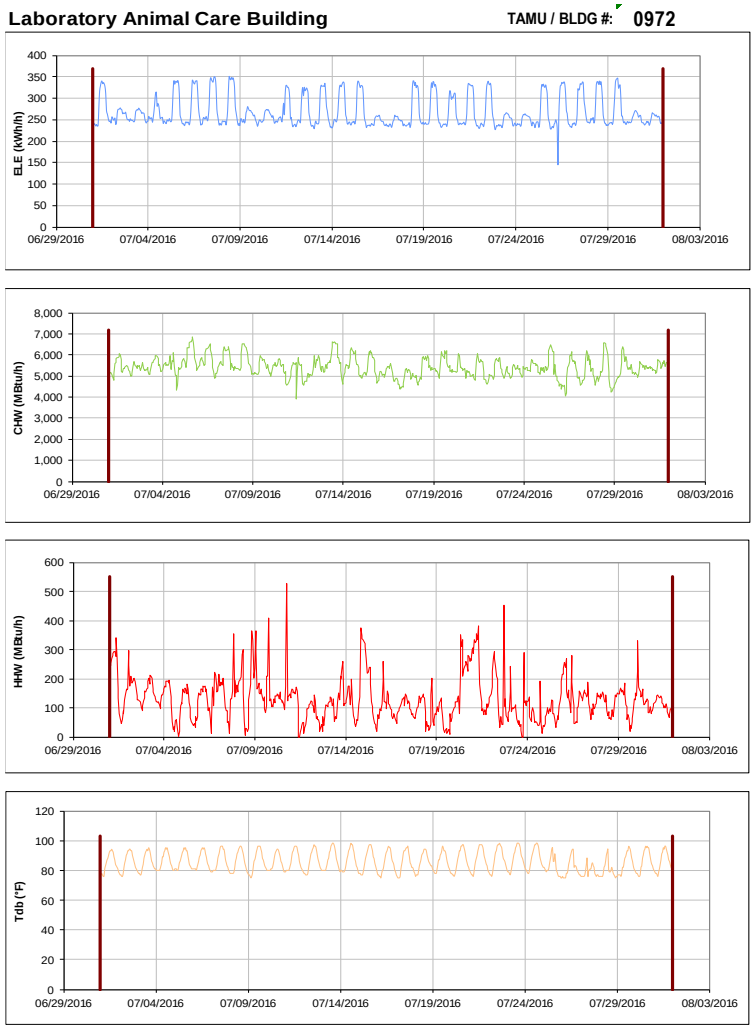


Figure III-118 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Laboratory Animal Care Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

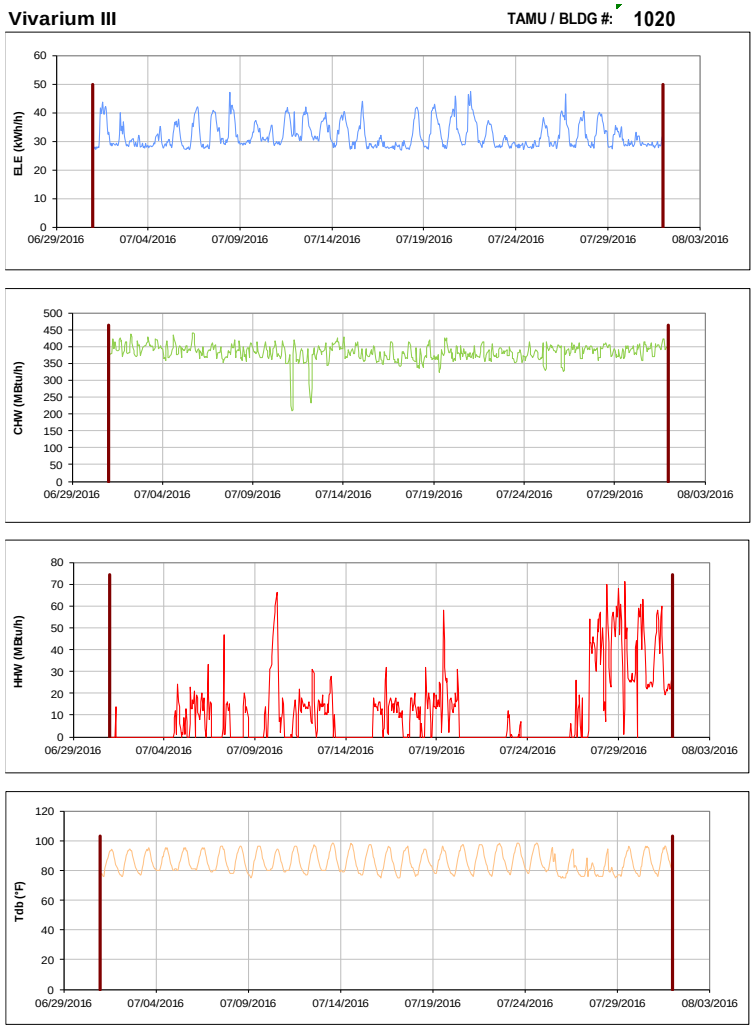


Figure III-119 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Vivarium III during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

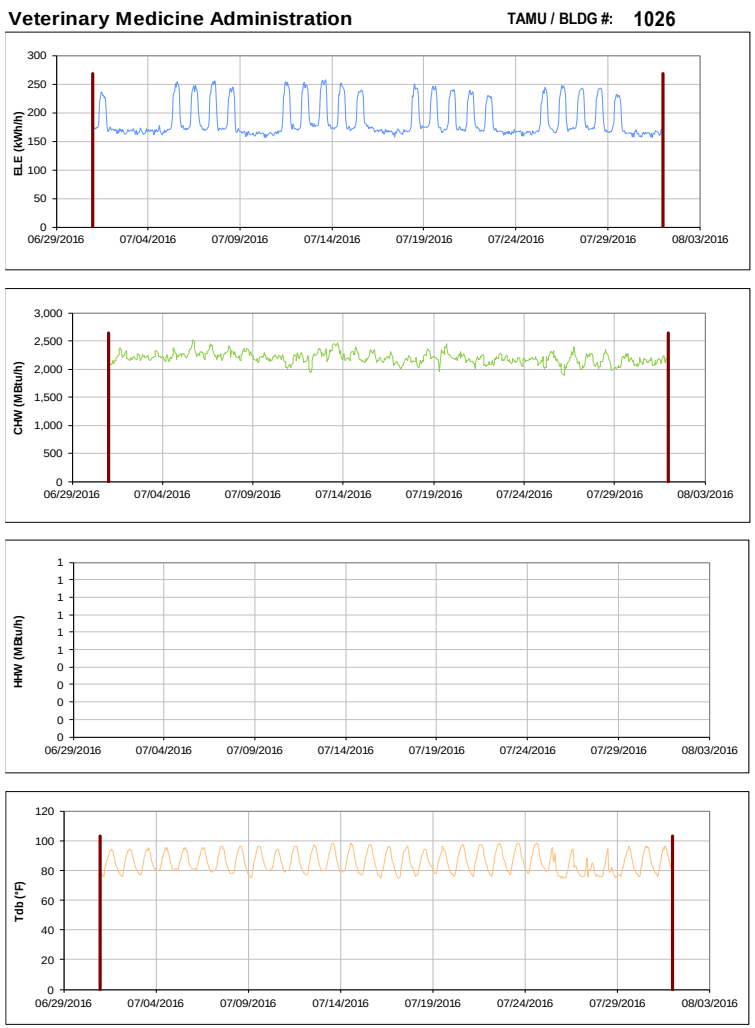


Figure III-120 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Medicine Administration during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

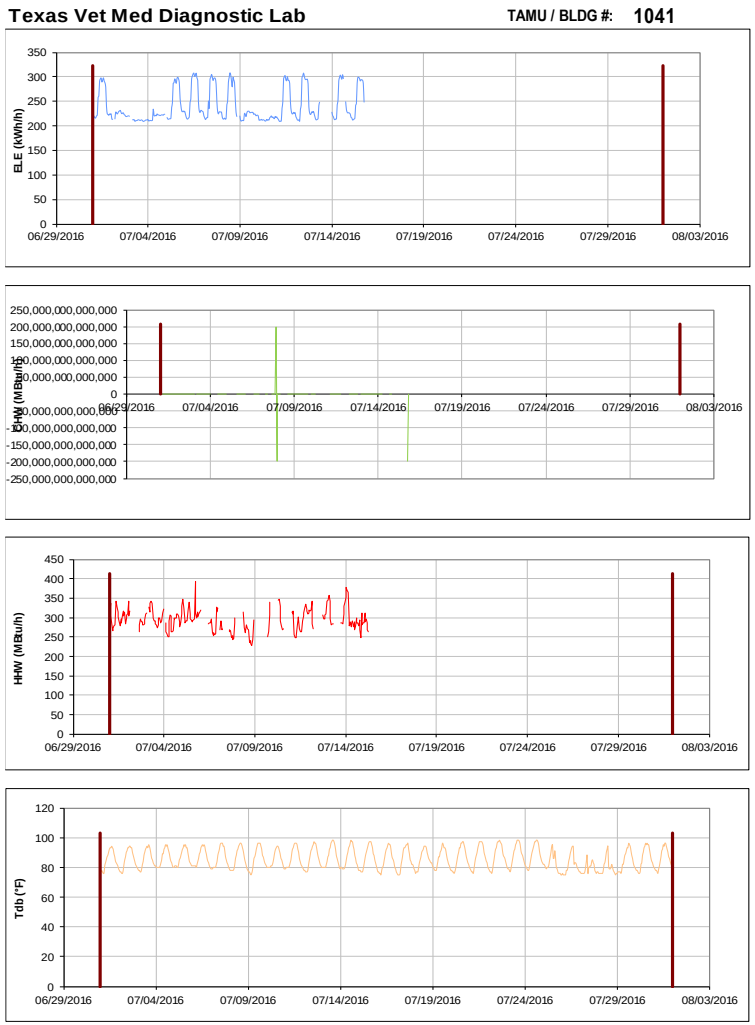


Figure III-121 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Texas Vet Med Diagnostic Lab during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

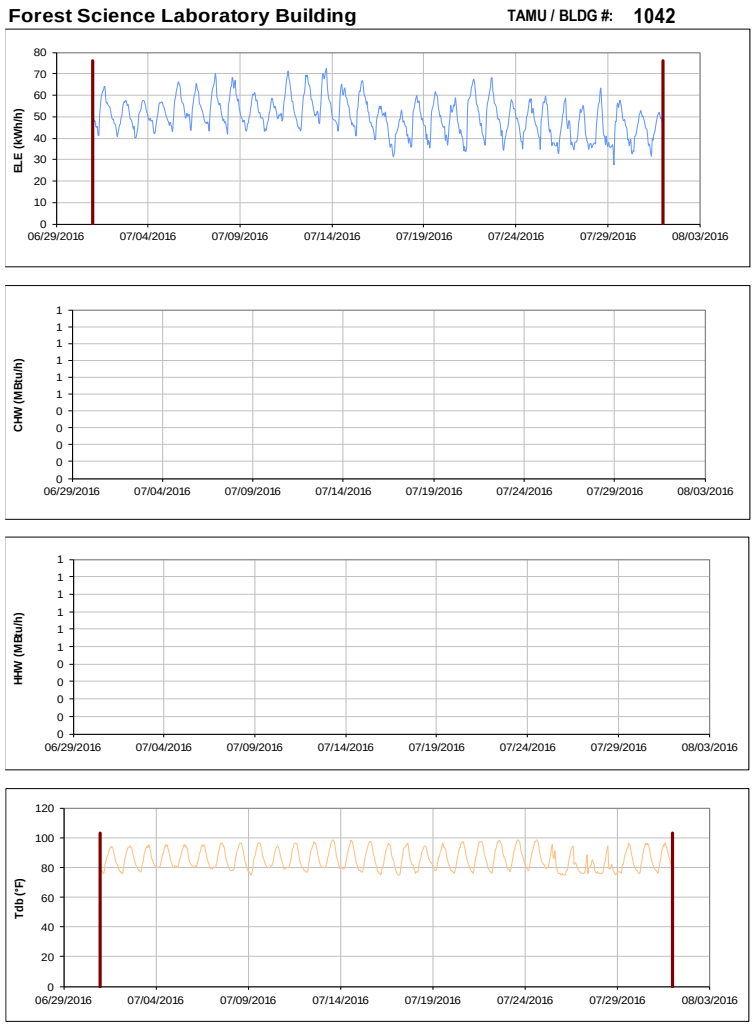


Figure III-122 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Forest Science Laboratory Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

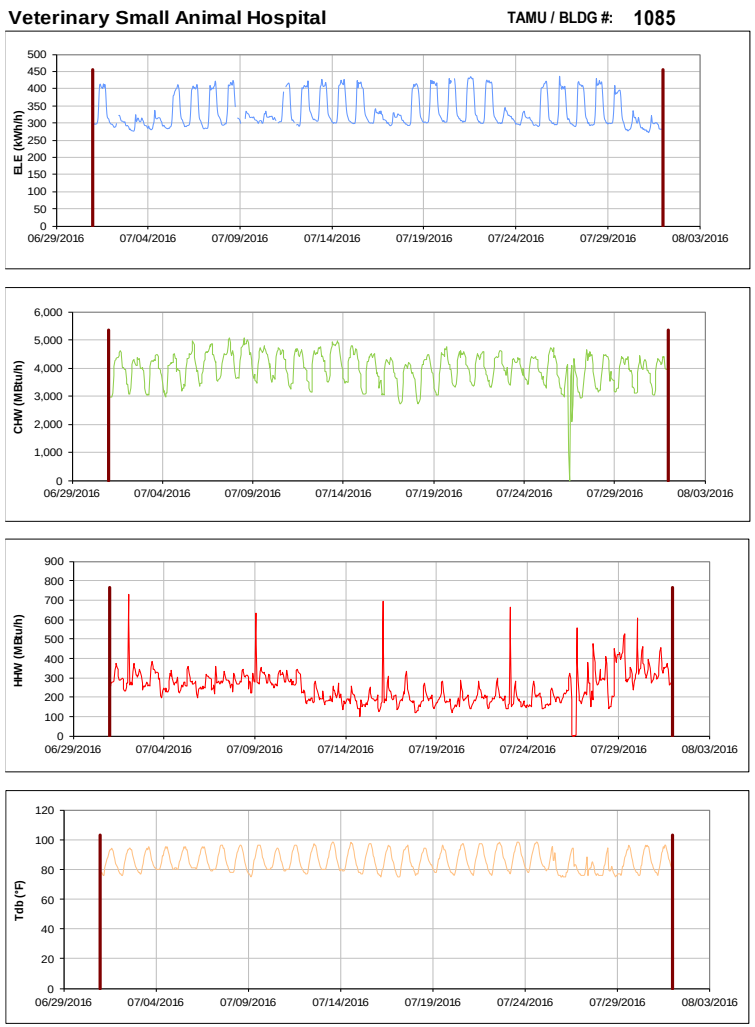


Figure III-123 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Small Animal Hospital during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

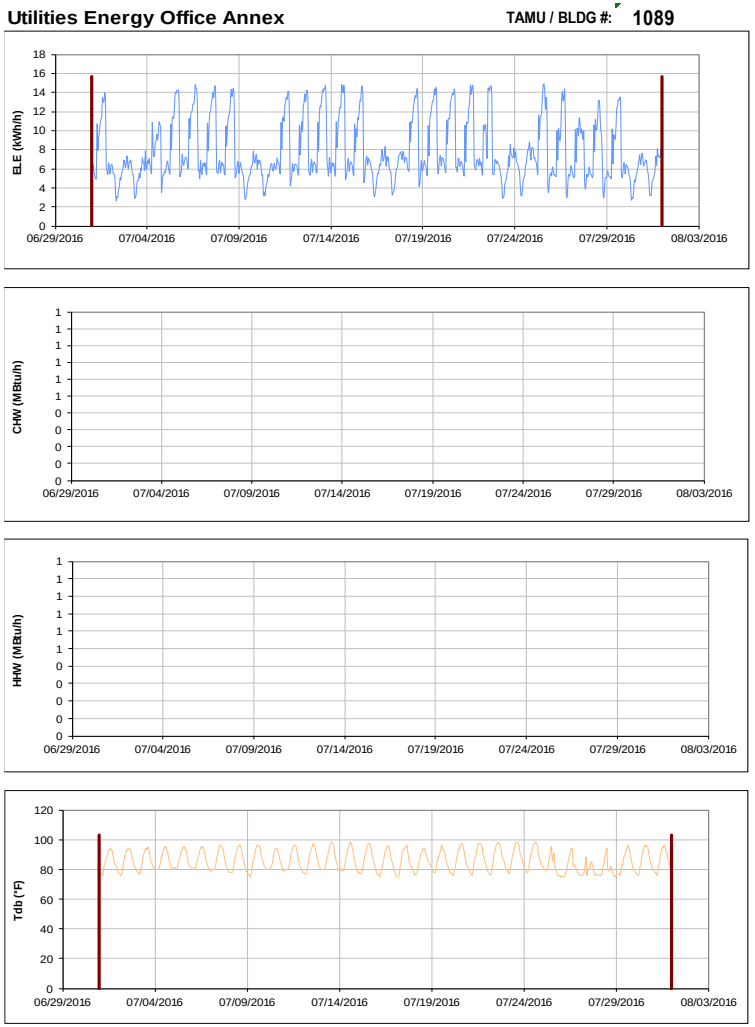


Figure III-124 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Utilities Energy Office Annex during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

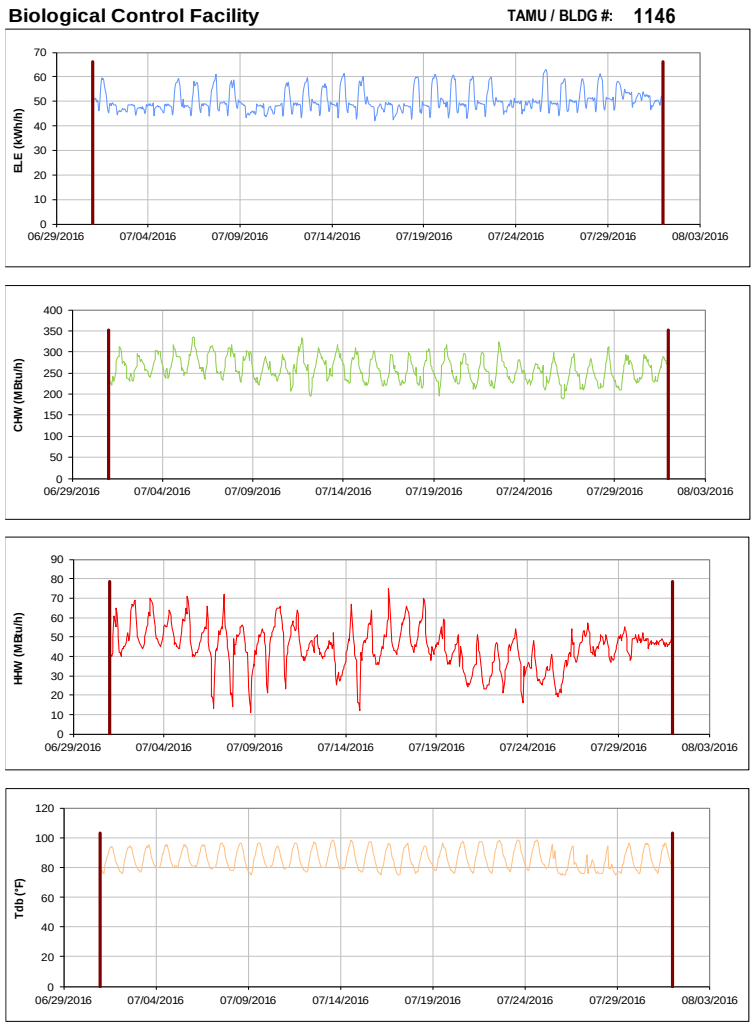


Figure III-125 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Biological Control Facility during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

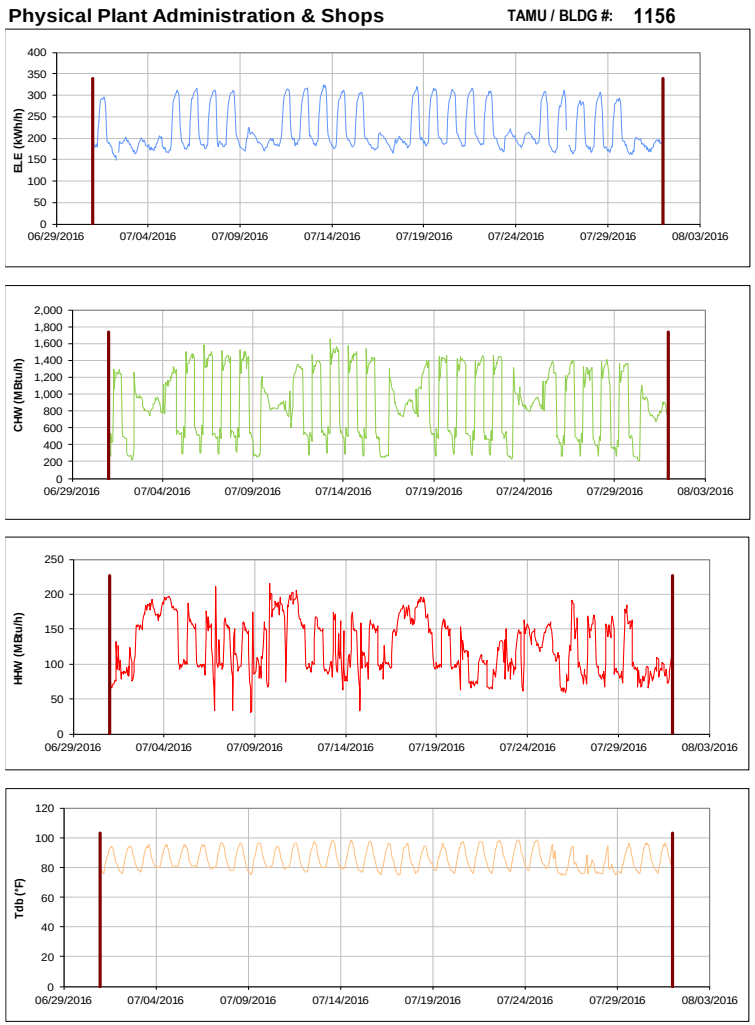


Figure III-126 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Physical Plant Administration & Shops during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

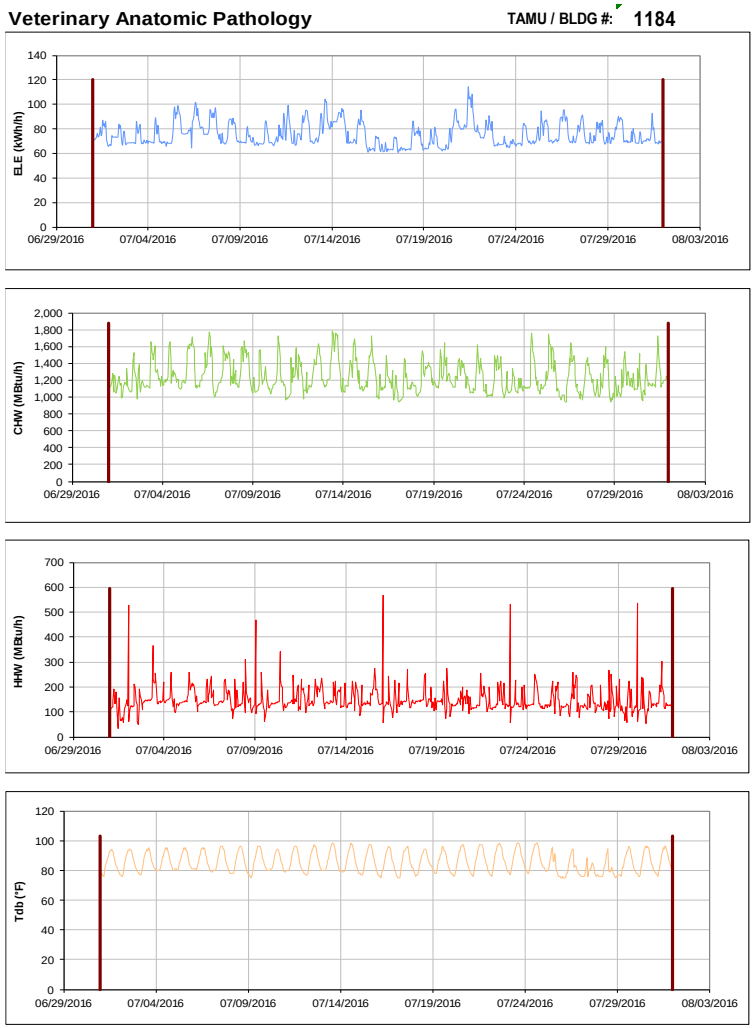


Figure III-127 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Anatomic Pathology during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

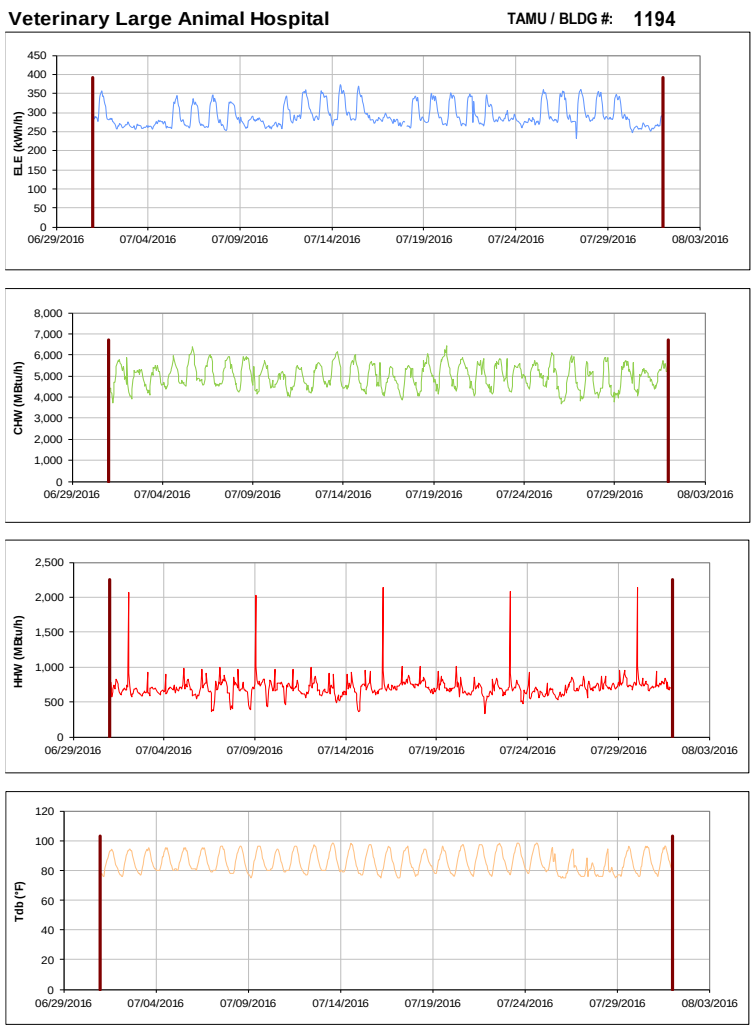


Figure III-128 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Large Animal Hospital during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

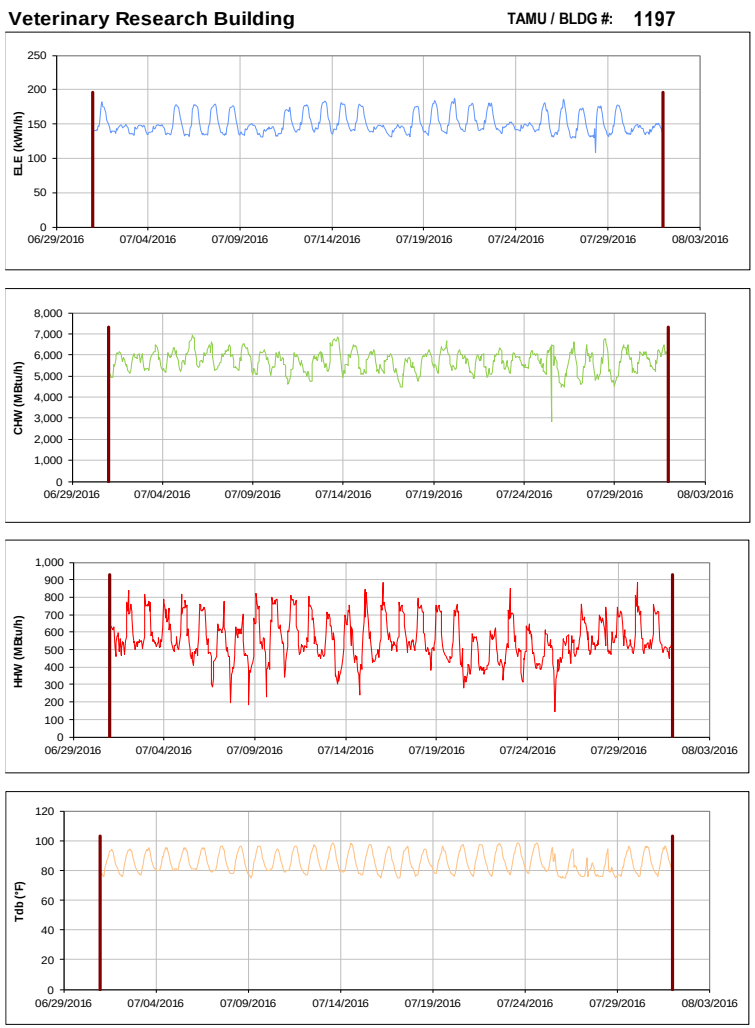


Figure III-129 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Research Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

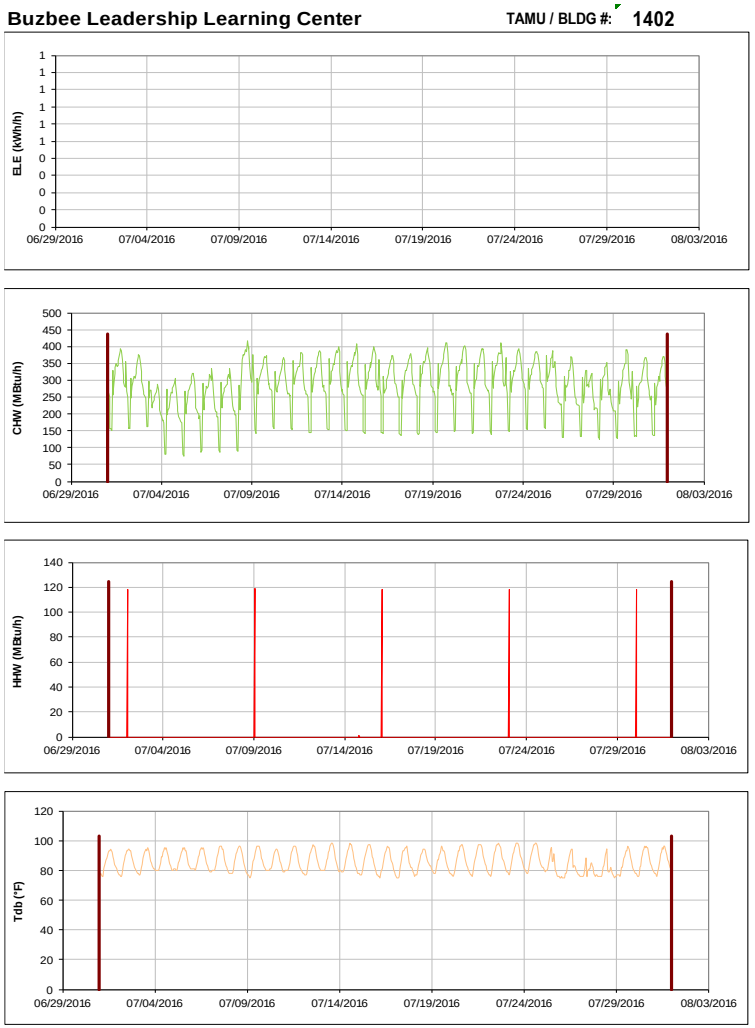


Figure III-130 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Buzbee Leadership Learning Center during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

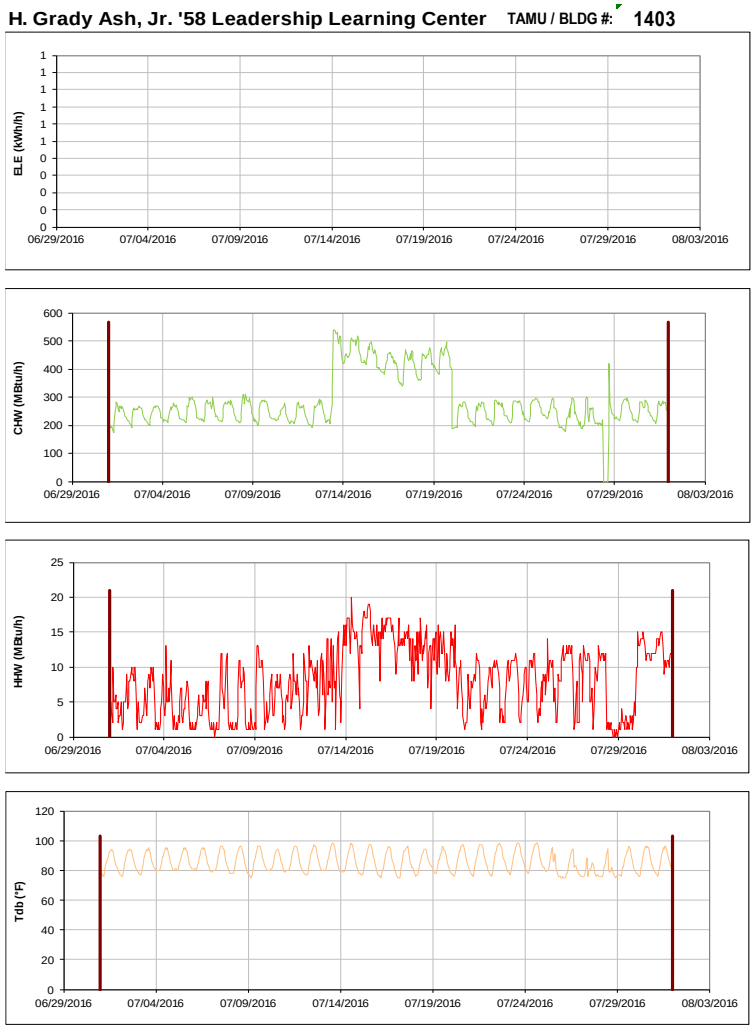


Figure III-131 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for H. Grady Ash, Jr. '58 Leadership Learning Center during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

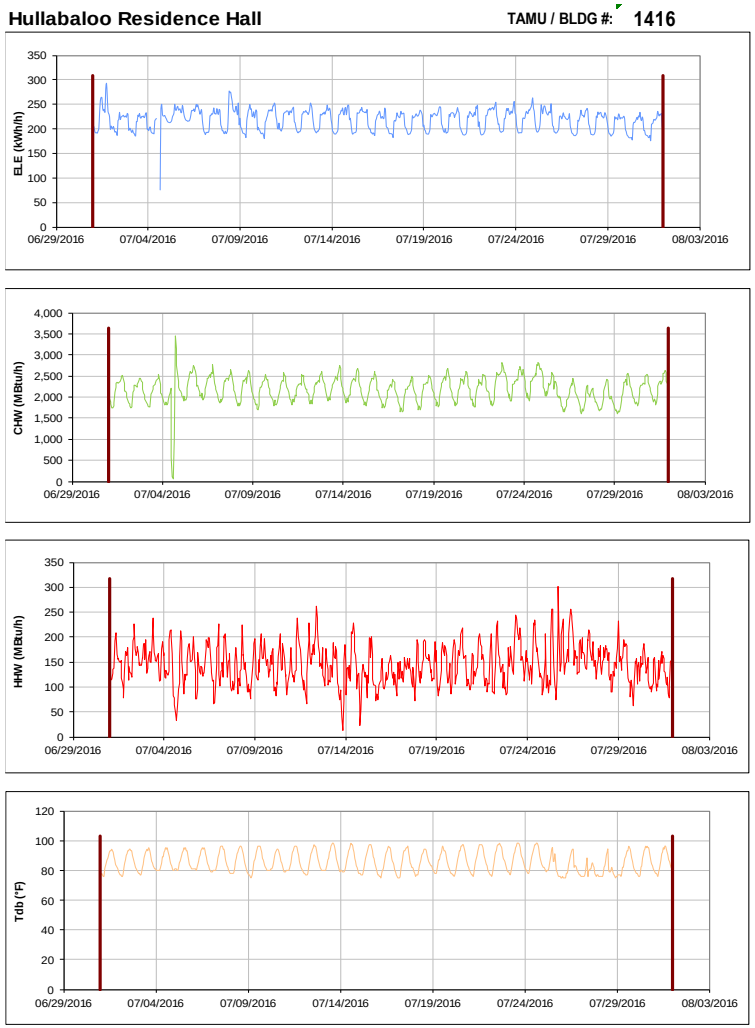


Figure III-132 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Hullabaloo Residence Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

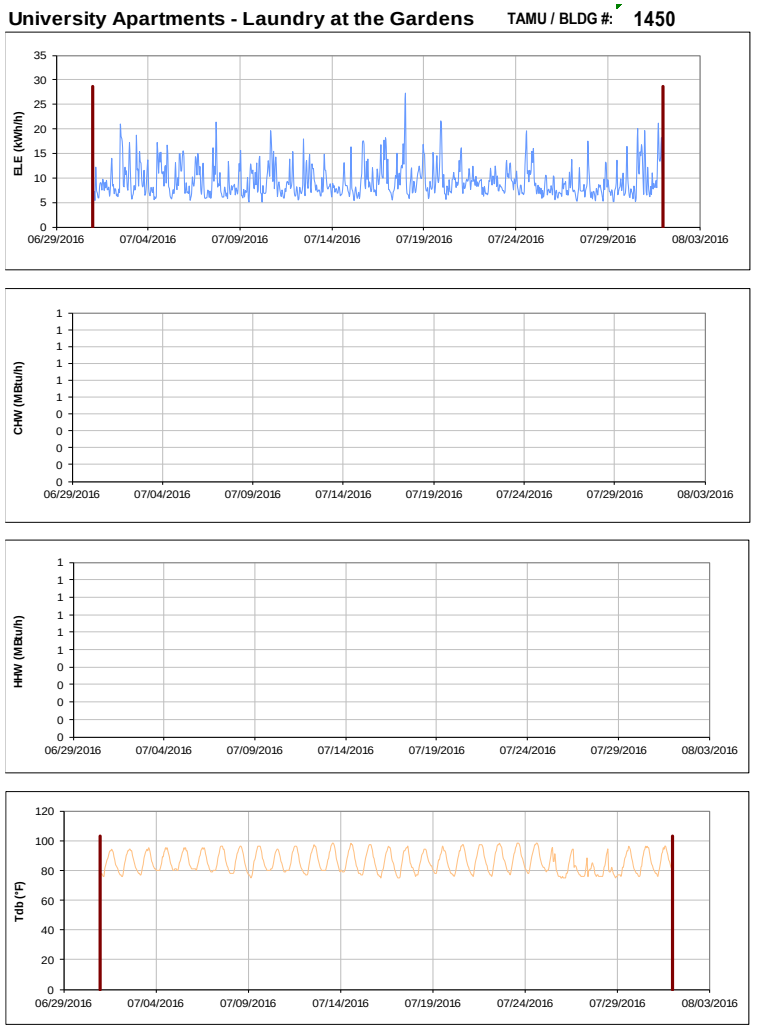


Figure III-133 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - Laundry at the Gardens during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

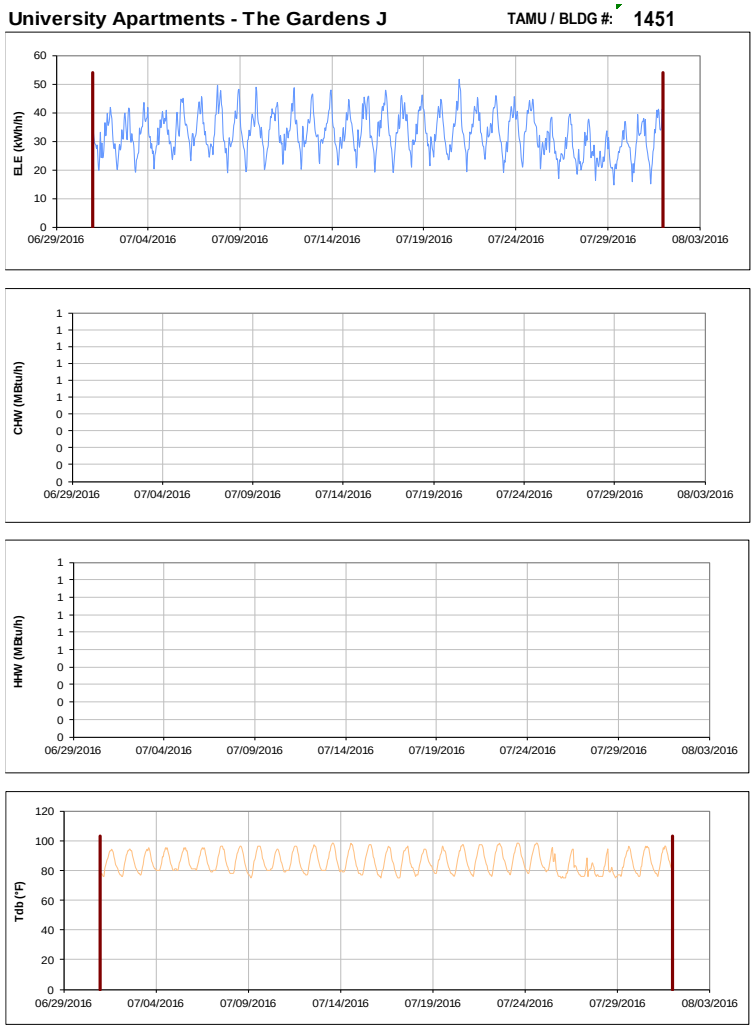


Figure III-134 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens J during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

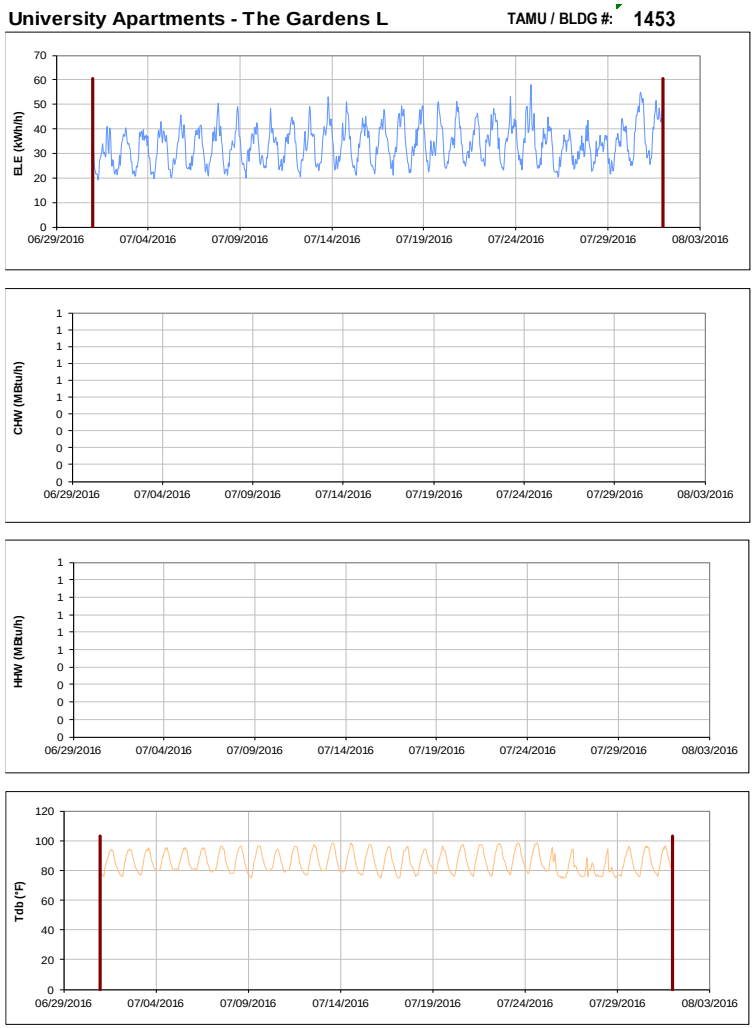


Figure III-135 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens L during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

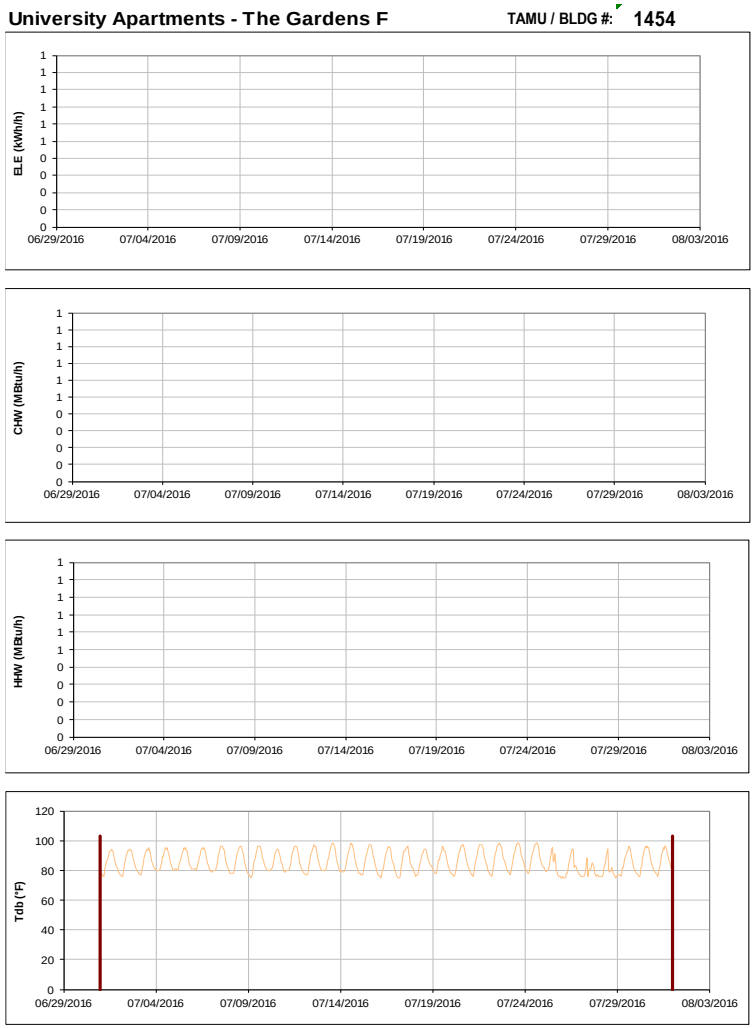


Figure III-136 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens F during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

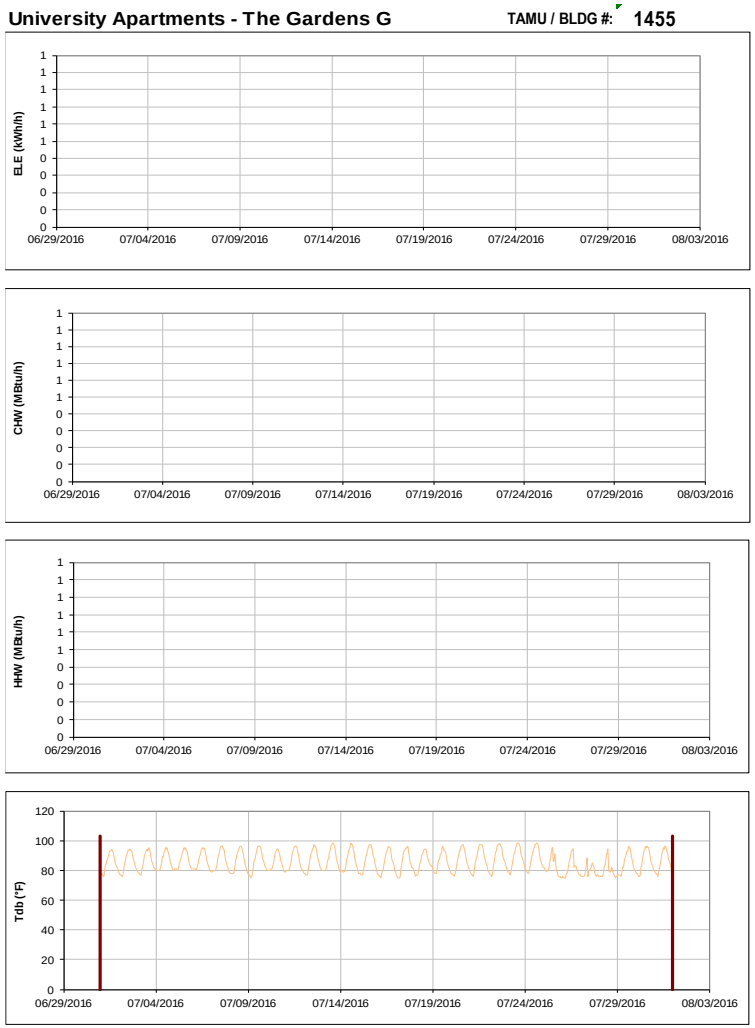


Figure III-137 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens G during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

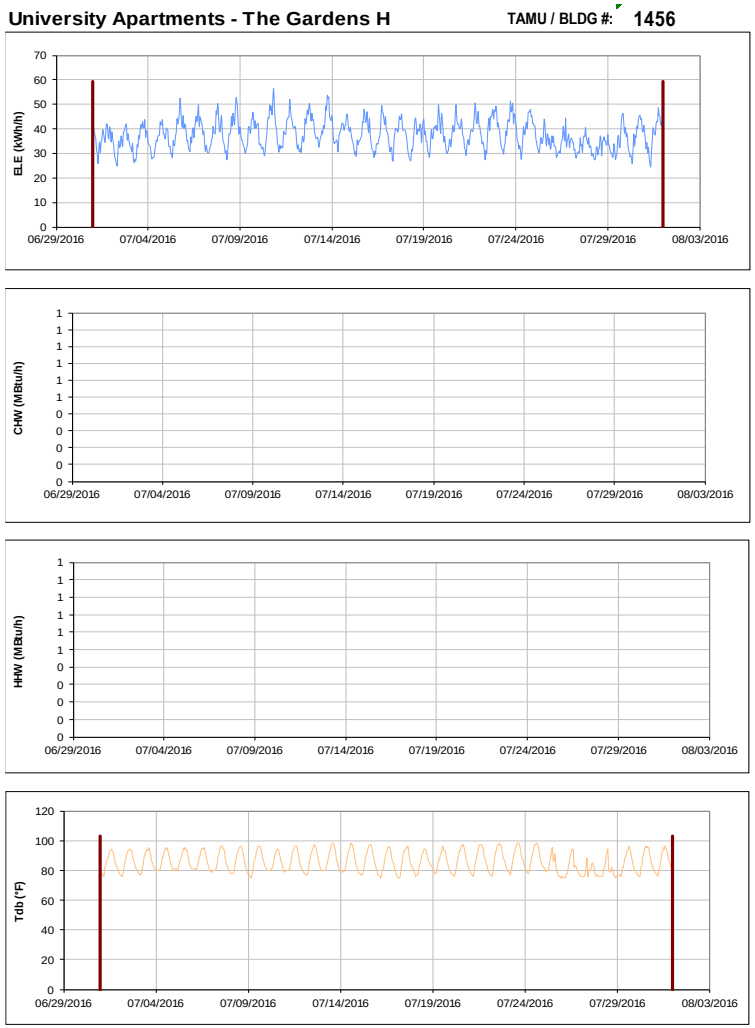


Figure III-138 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens H during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

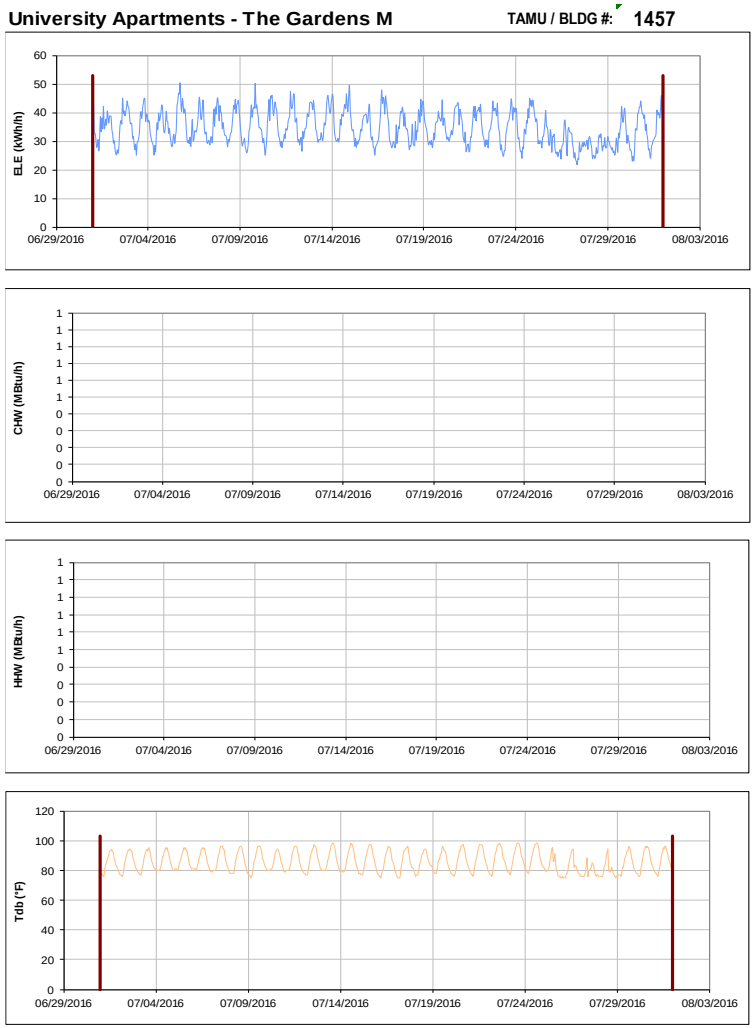


Figure III-139 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens M during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

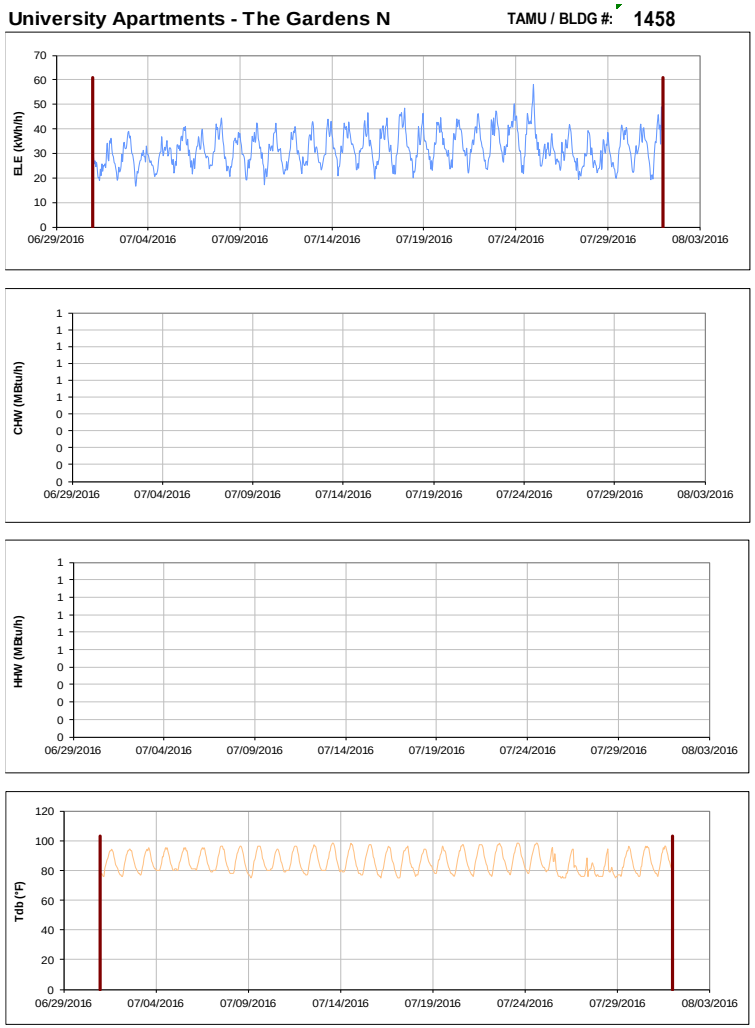


Figure III-140 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens N during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

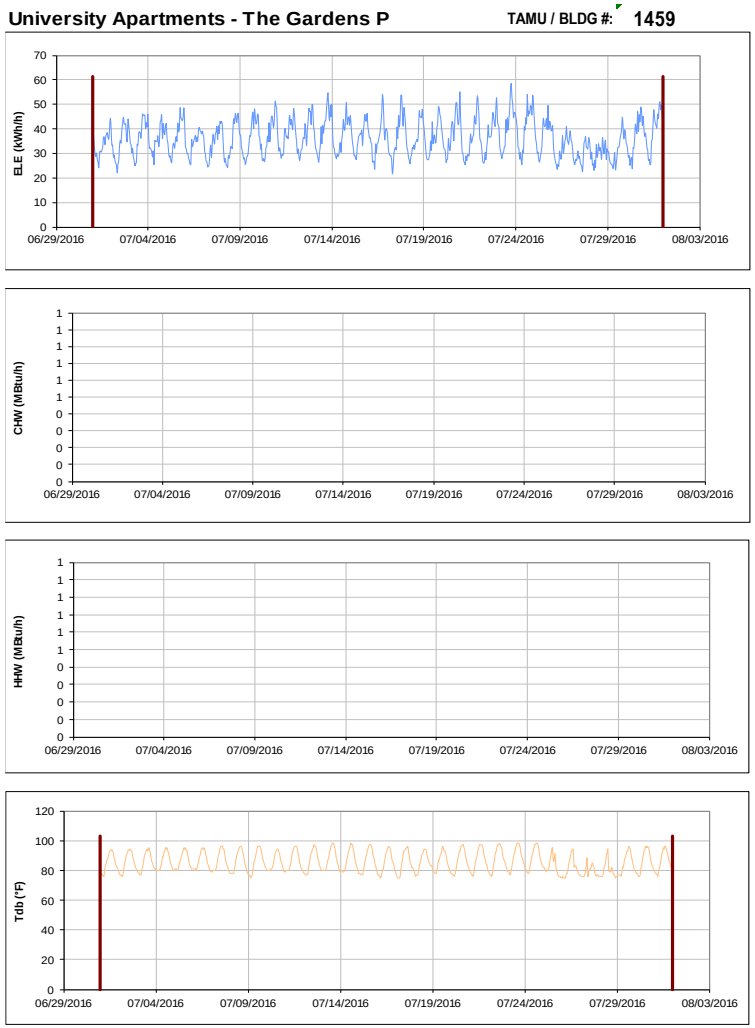


Figure III-141 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens P during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

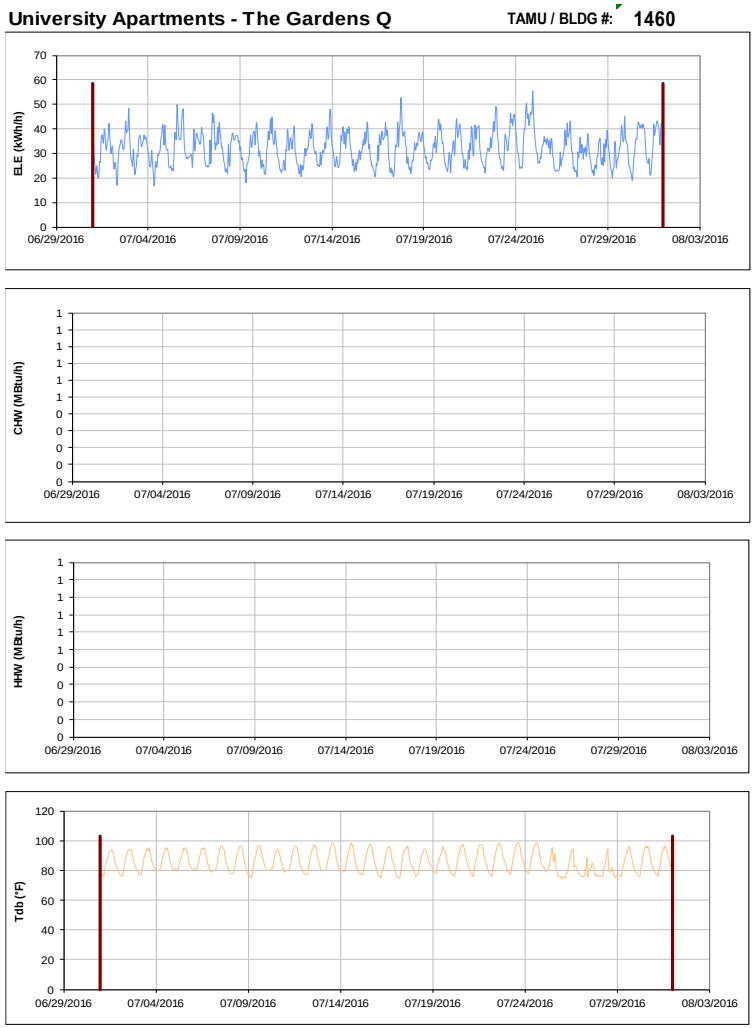


Figure III-142 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens Q during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

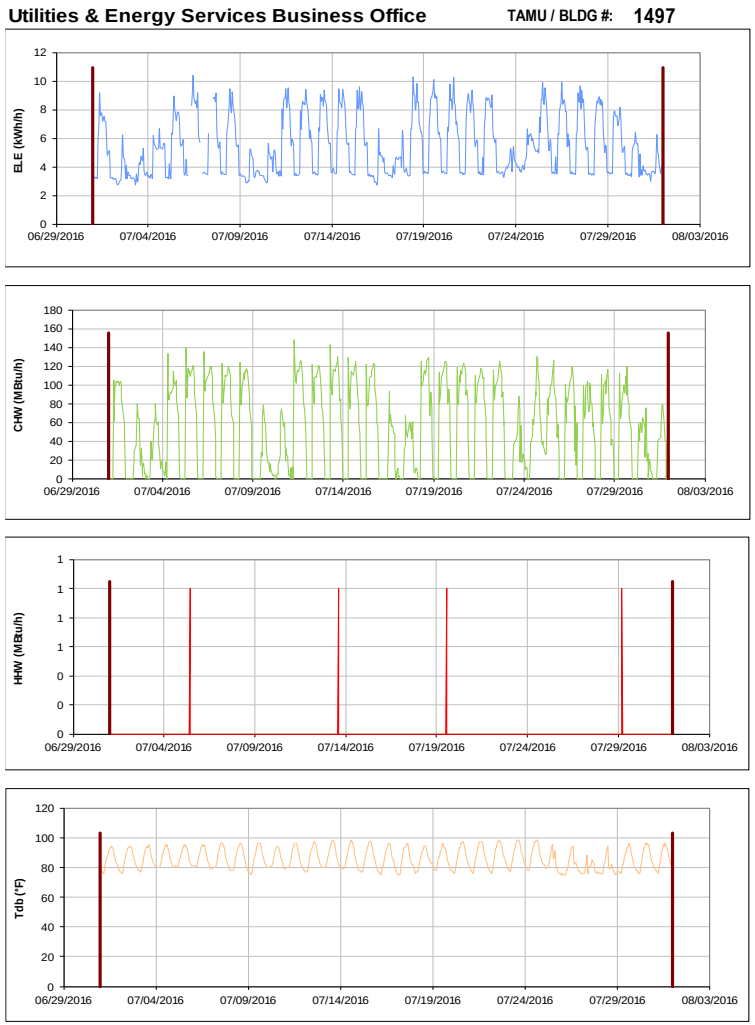


Figure III-143 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Utilities & Energy Services Business Office during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-144 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Kleberg Center during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

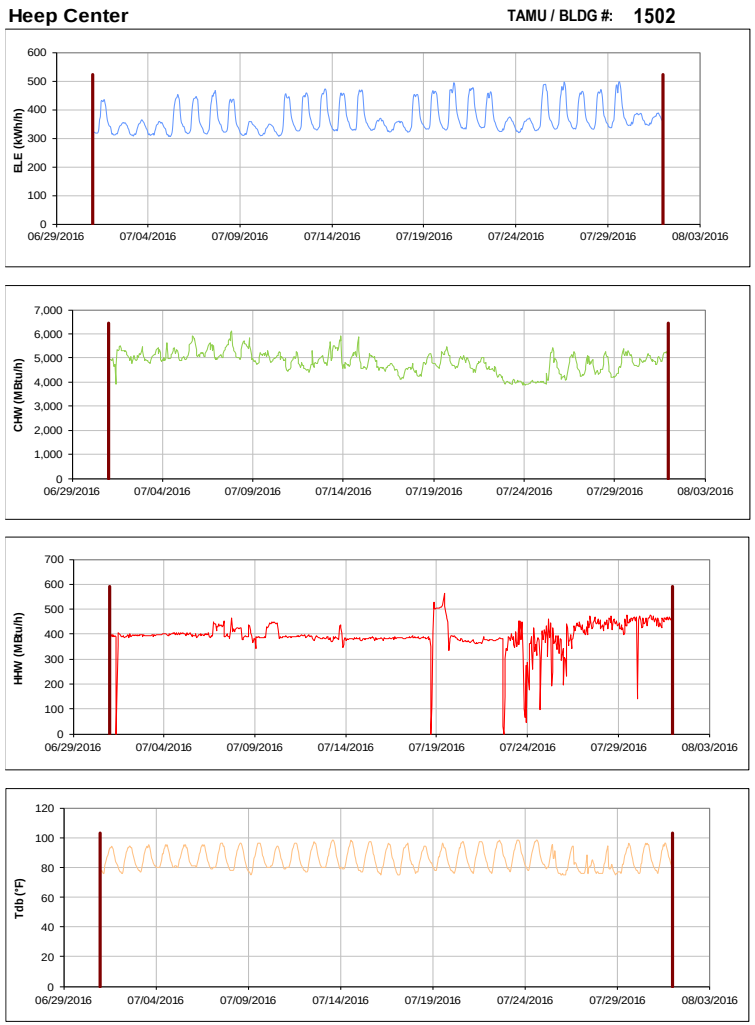


Figure III-145 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Heep Center during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

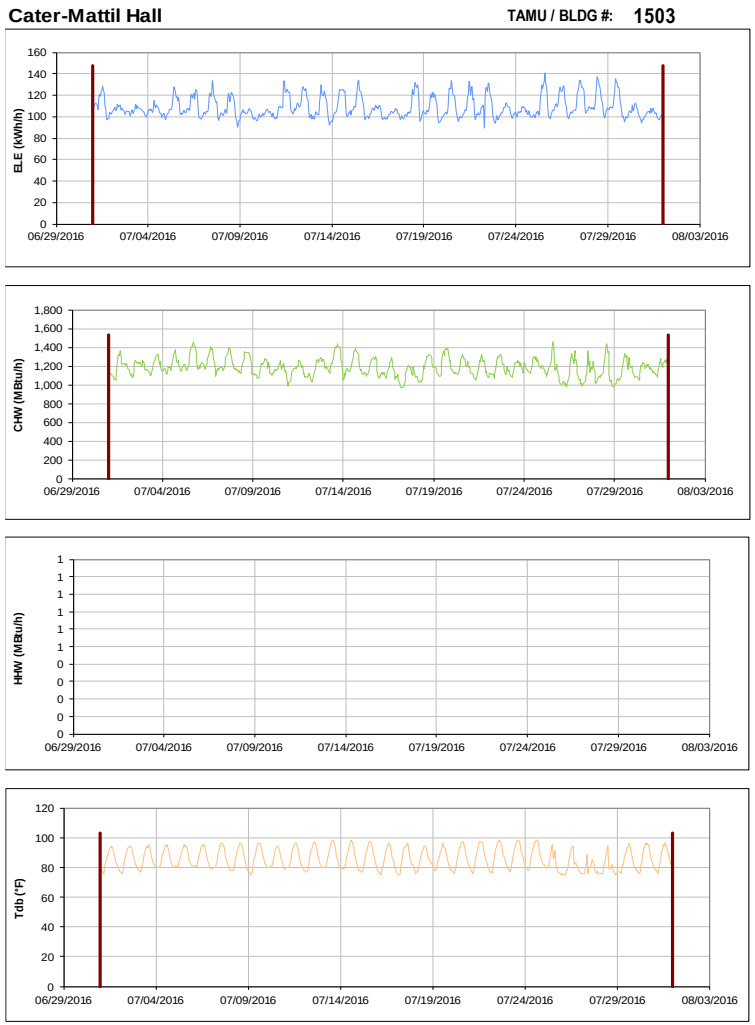


Figure III-146 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Cater-Mattil Hall during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

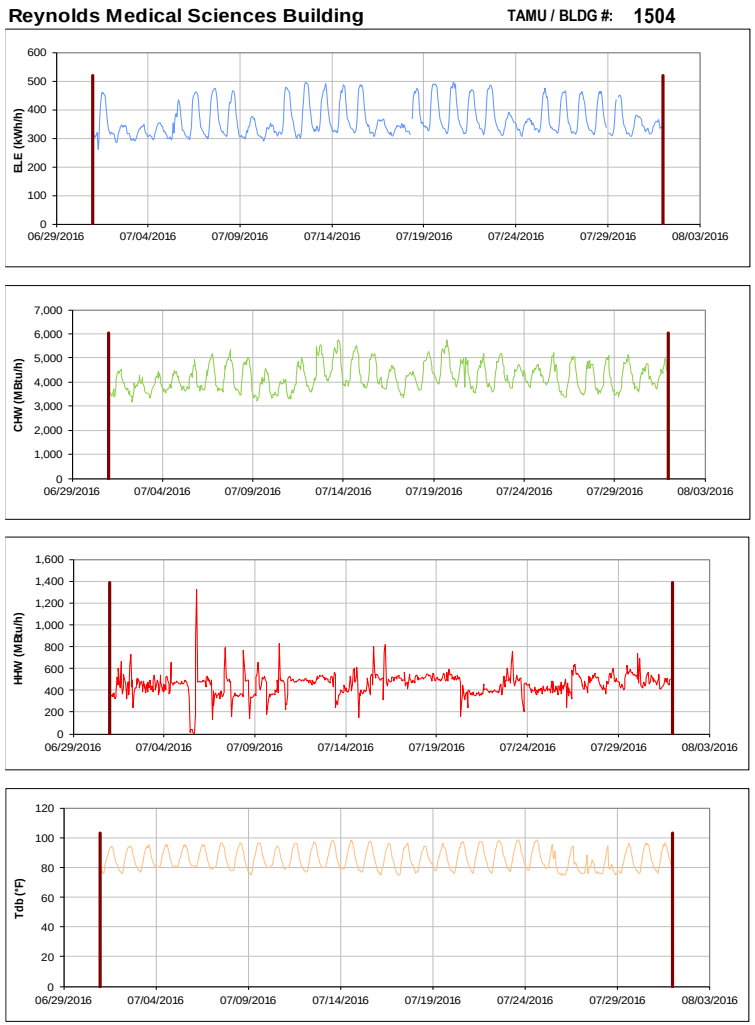


Figure III-147 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Reynolds Medical Sciences Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

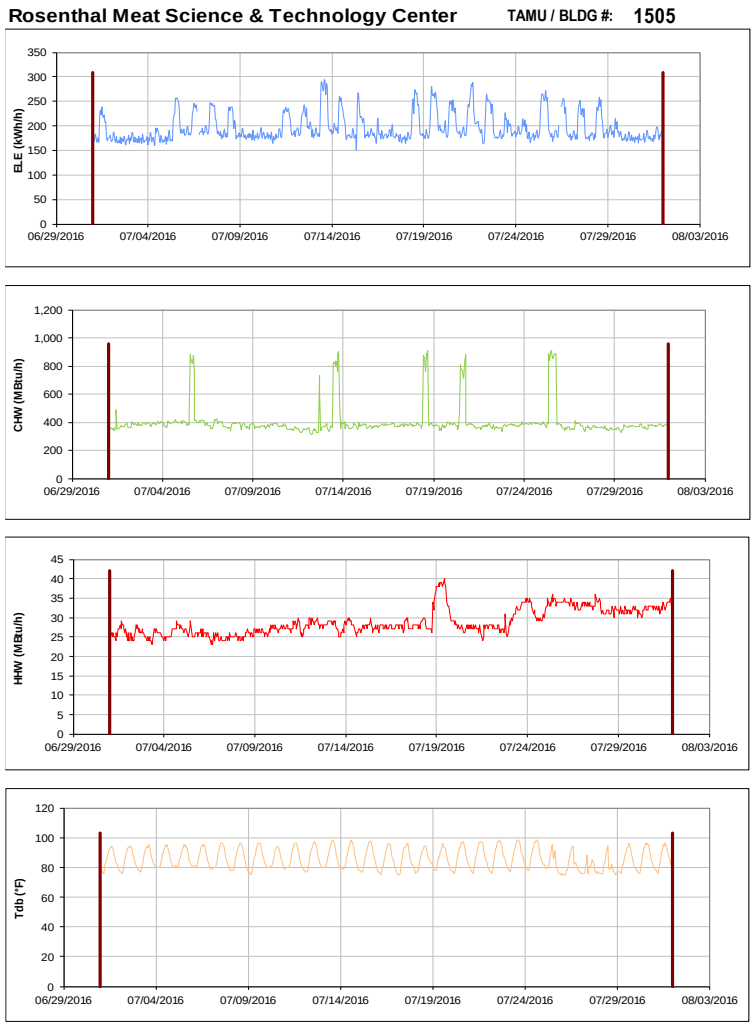


Figure III-148 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rosenthal Meat Science & Technology Center during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

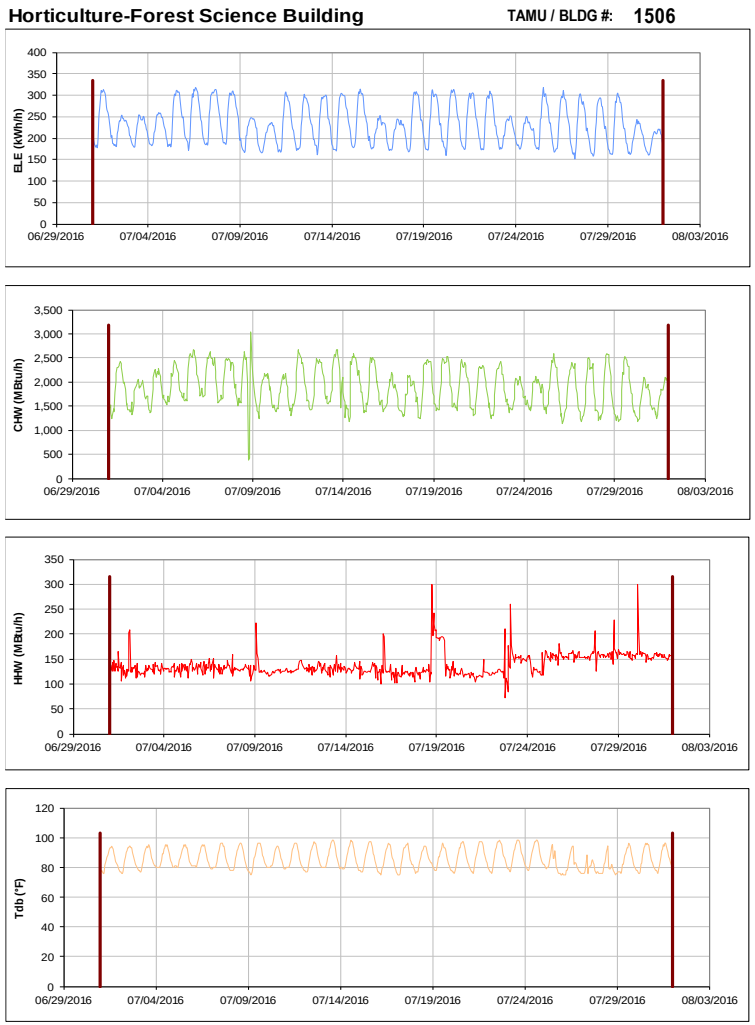


Figure III-149 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Horticulture-Forest Science Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

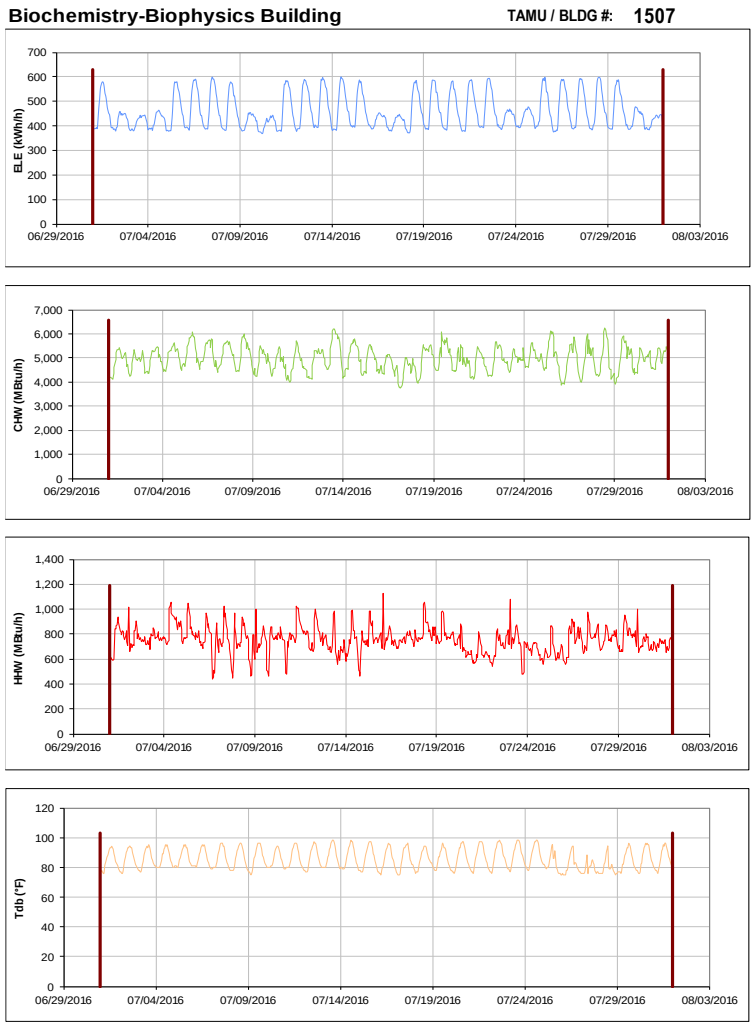


Figure III-150 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Biochemistry-Biophysics Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

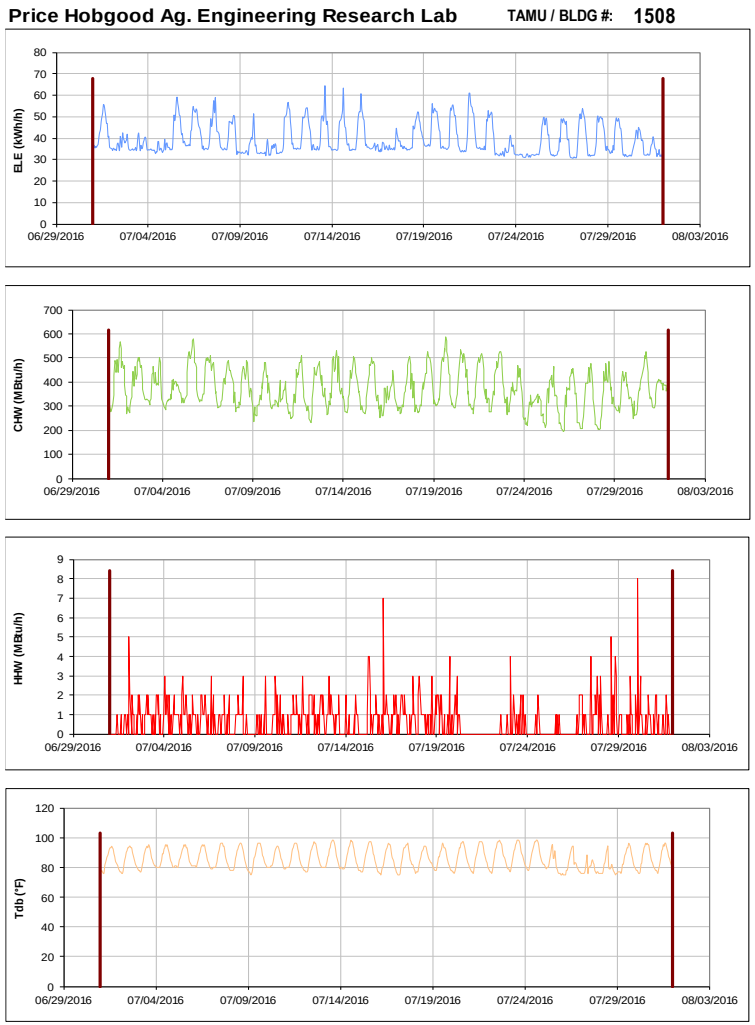


Figure III-151 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Price Hobgood Ag. Engineering Research Lab during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

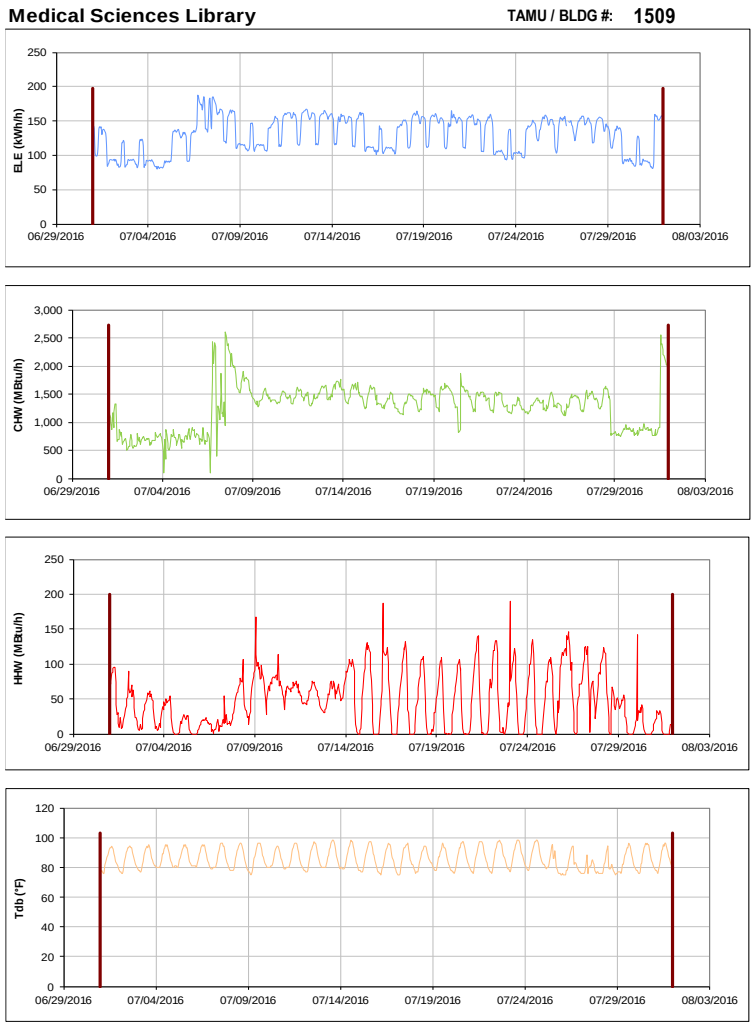


Figure III-152 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Medical Sciences Library during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

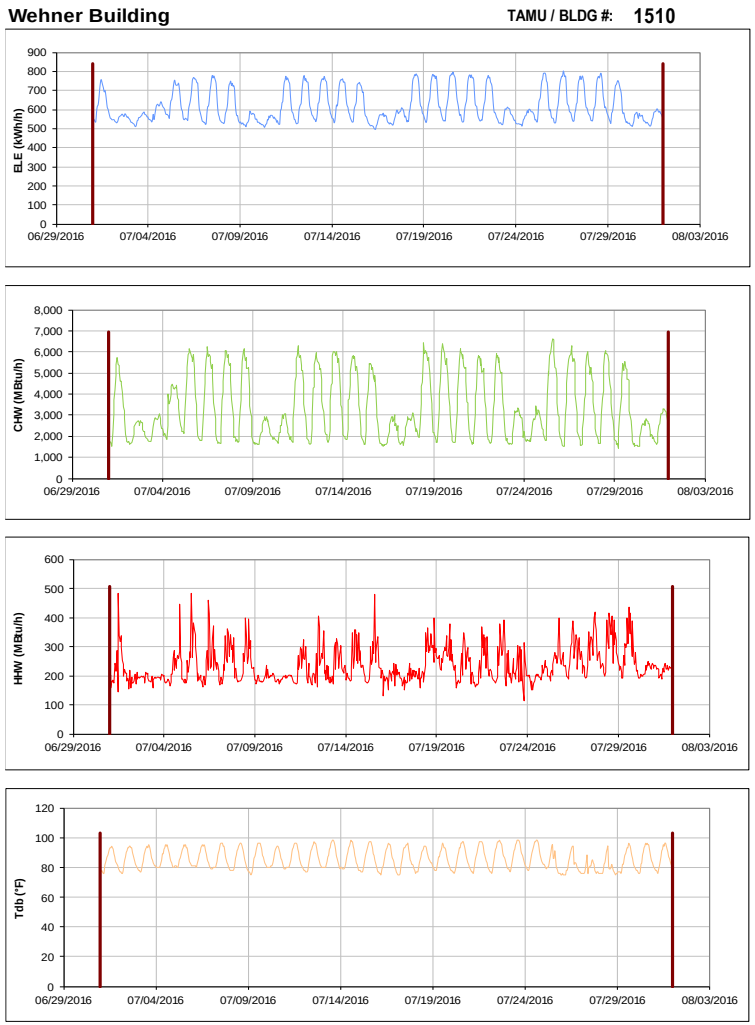


Figure III-153 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Wehner Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

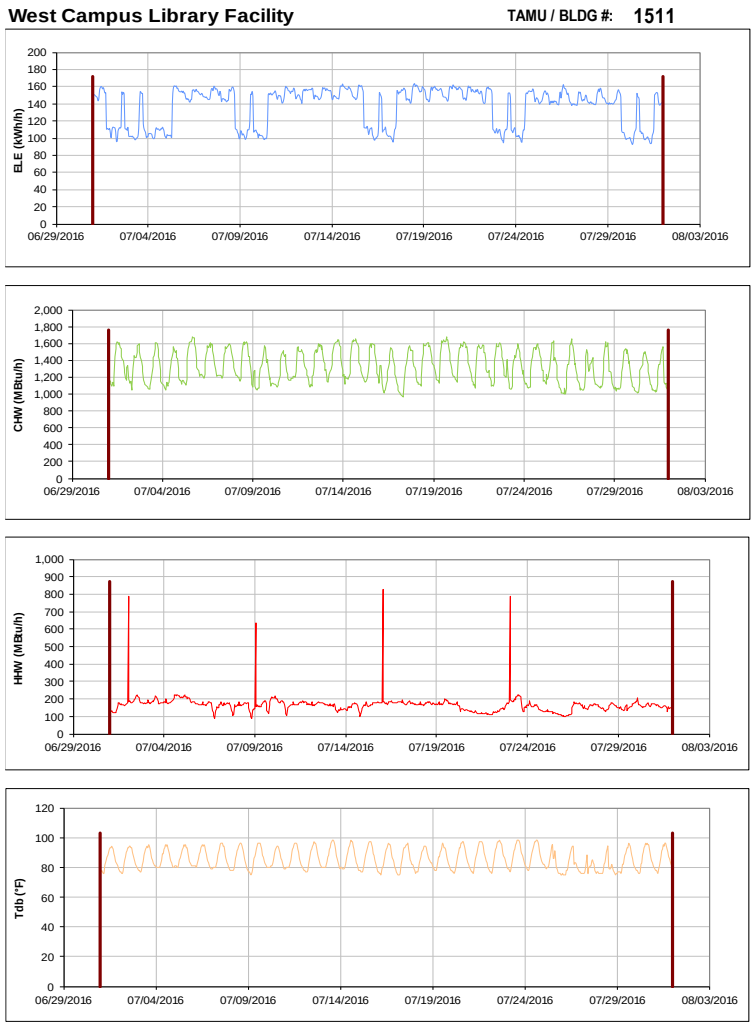


Figure III-154 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for West Campus Library Facility during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

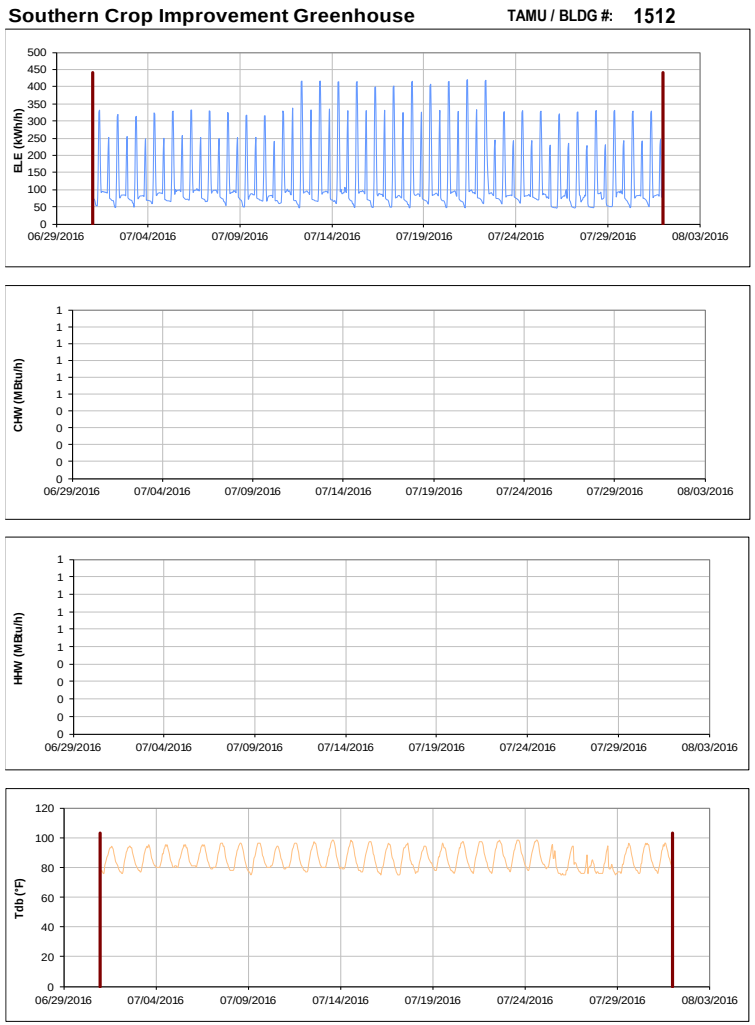


Figure III-155 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Southern Crop Improvement Greenhouse during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

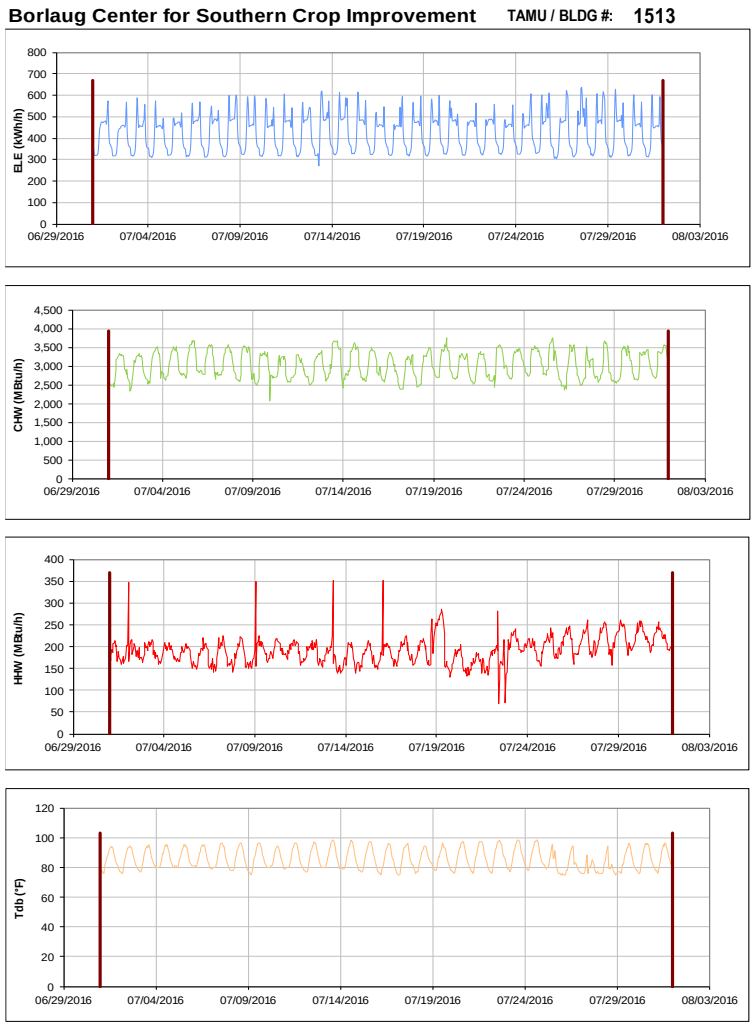


Figure III-156 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Borlaug Center for Southern Crop Improvement during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

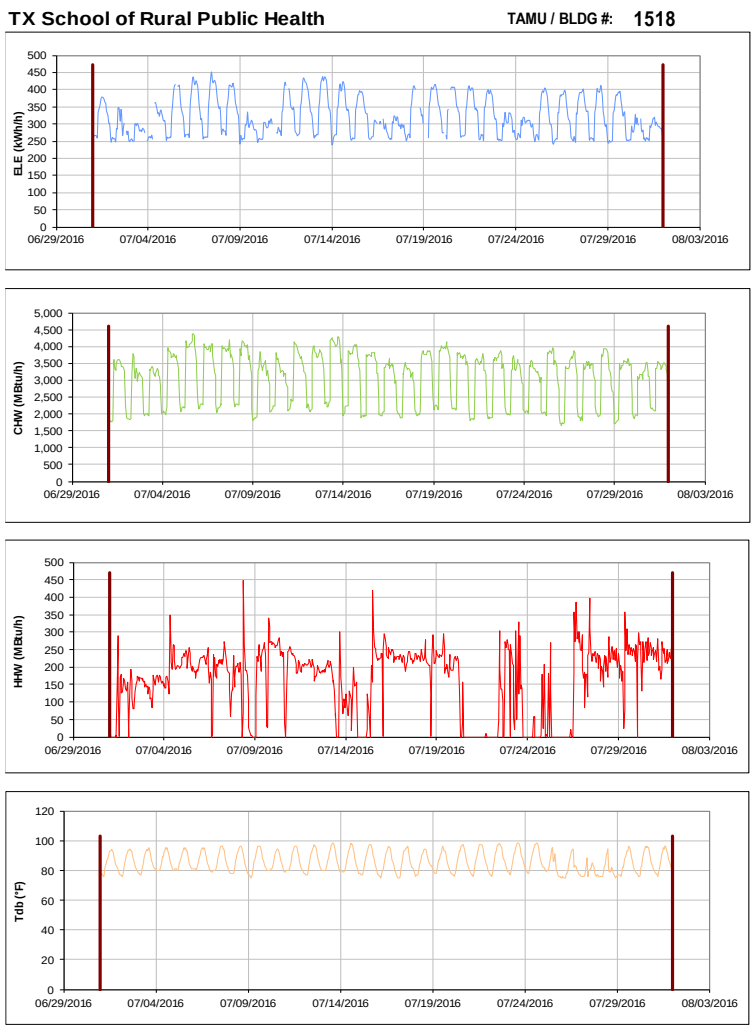


Figure III-157 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for TX School of Rural Public Health during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

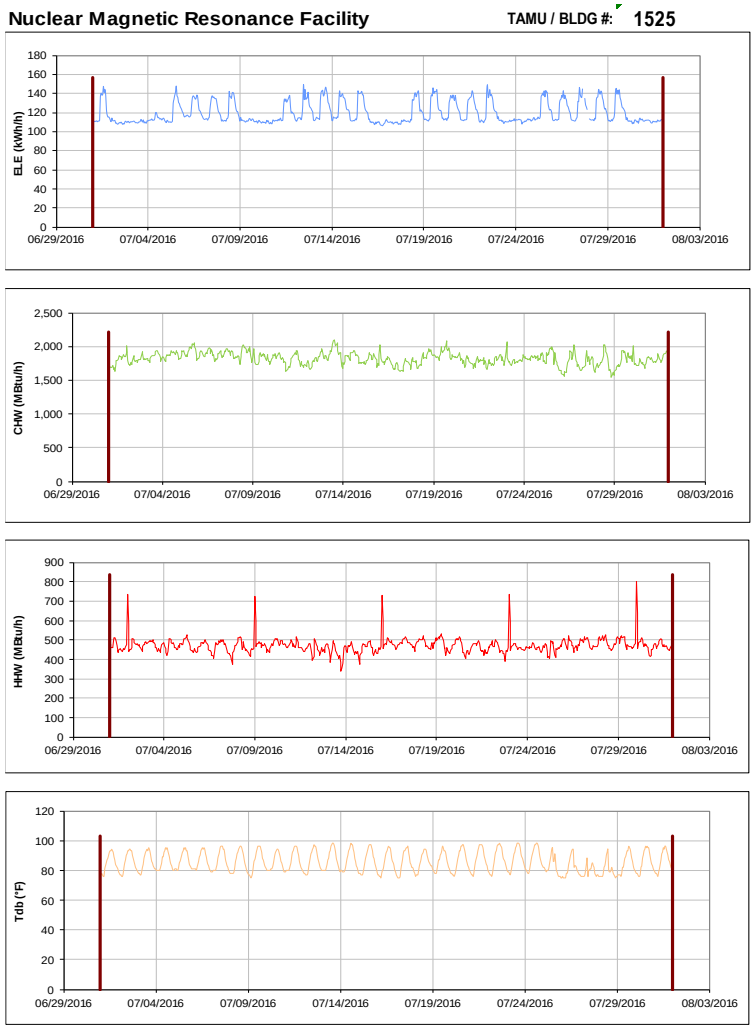


Figure III-158 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Nuclear Magnetic Resonance Facility during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

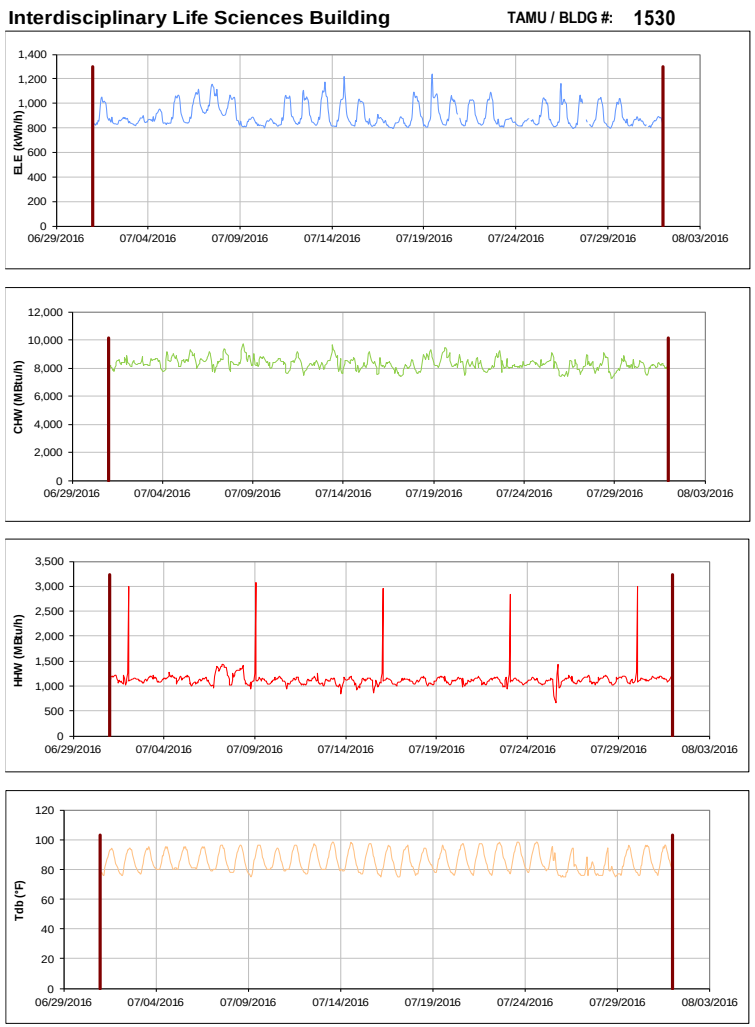


Figure III-159 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Interdisciplinary Life Sciences Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

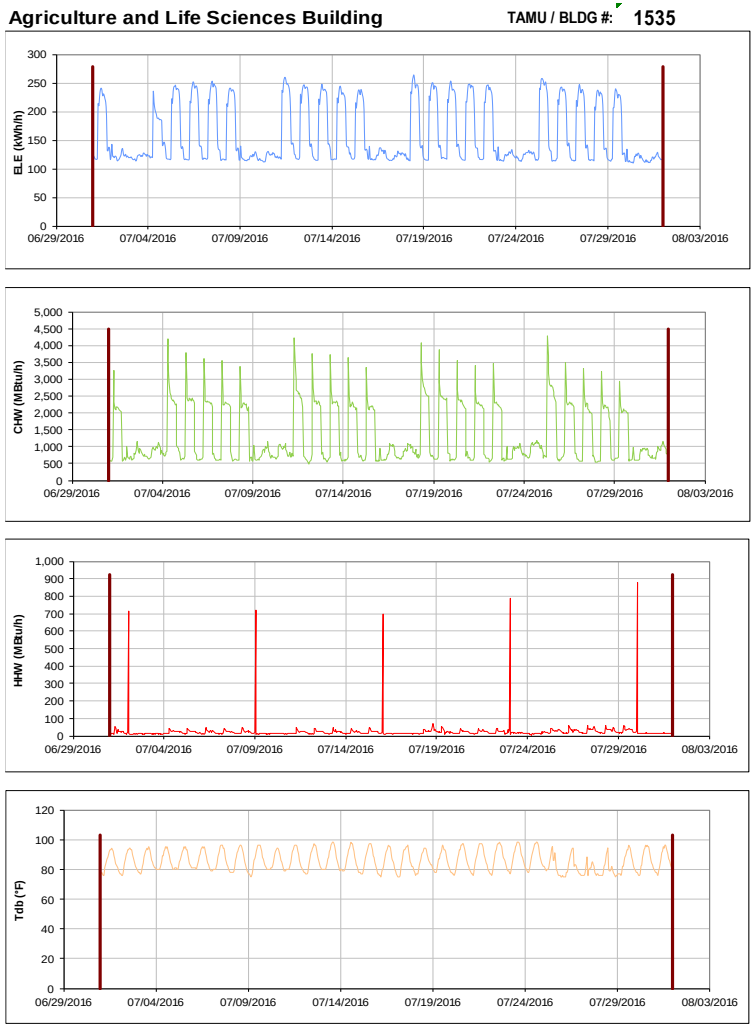


Figure III-160 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Agriculture and Life Sciences Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-161 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for AgriLife Services Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

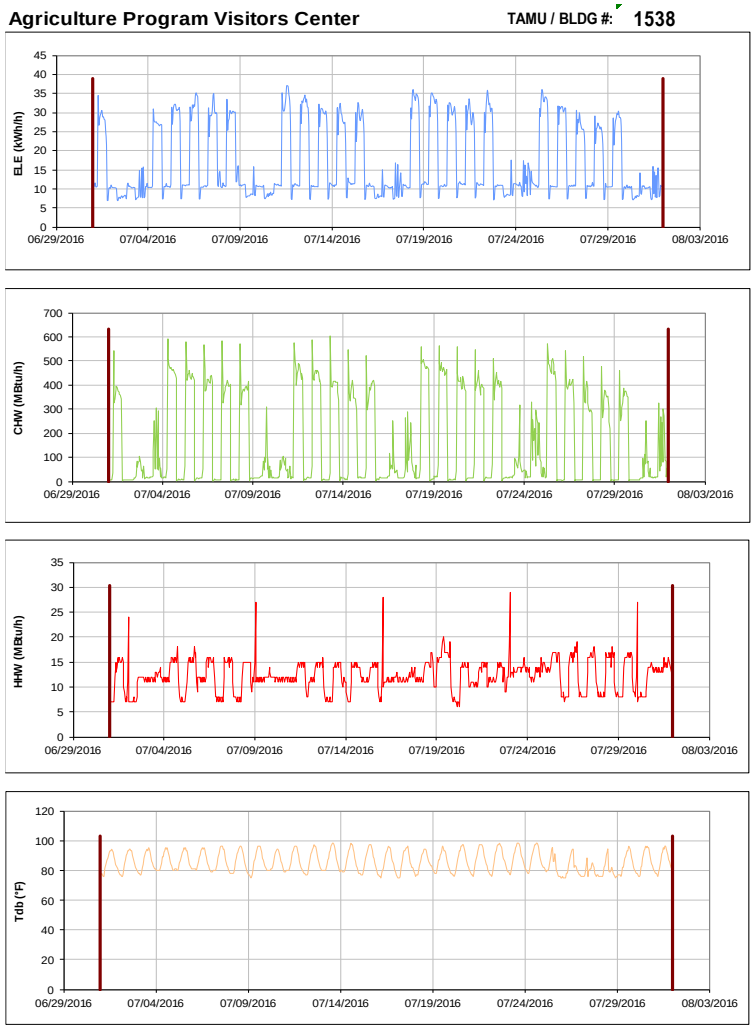


Figure III-162 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Agriculture Program Visitors Center during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

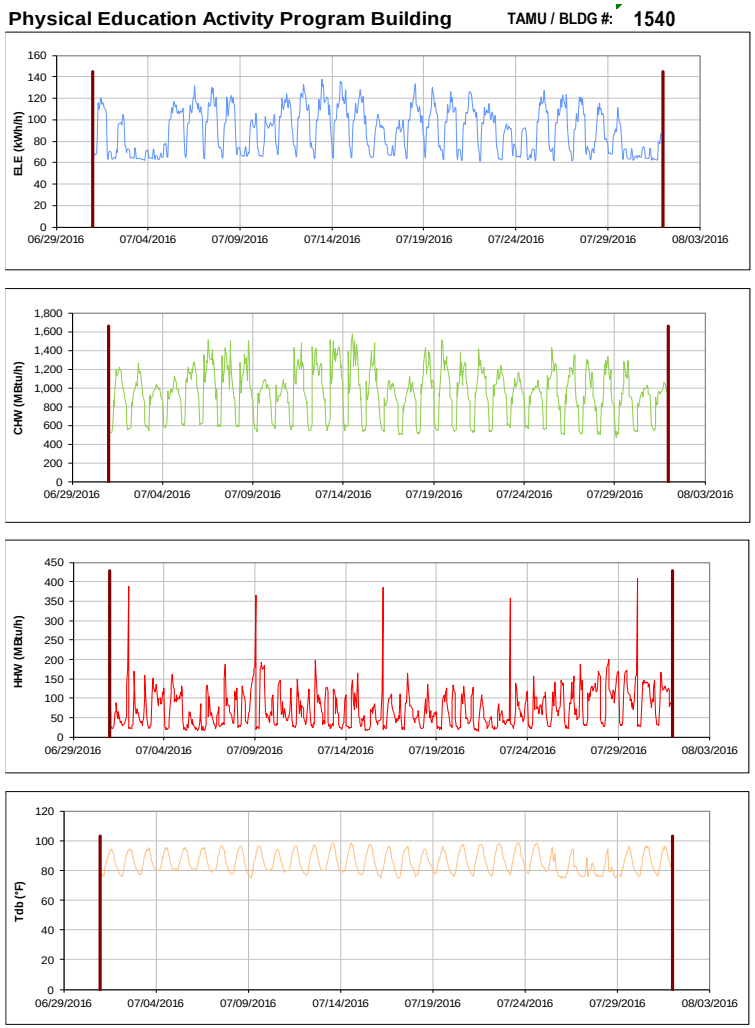


Figure III-163 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Physical Education Activity Program Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

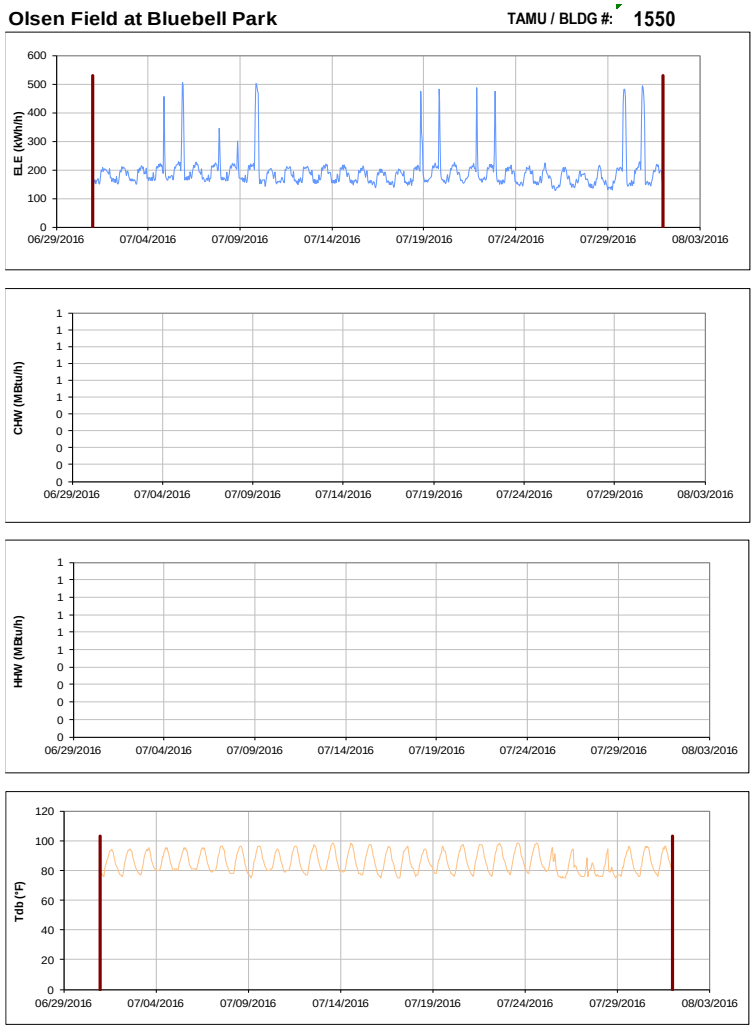


Figure III-164 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Olsen Field at Bluebell Park during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

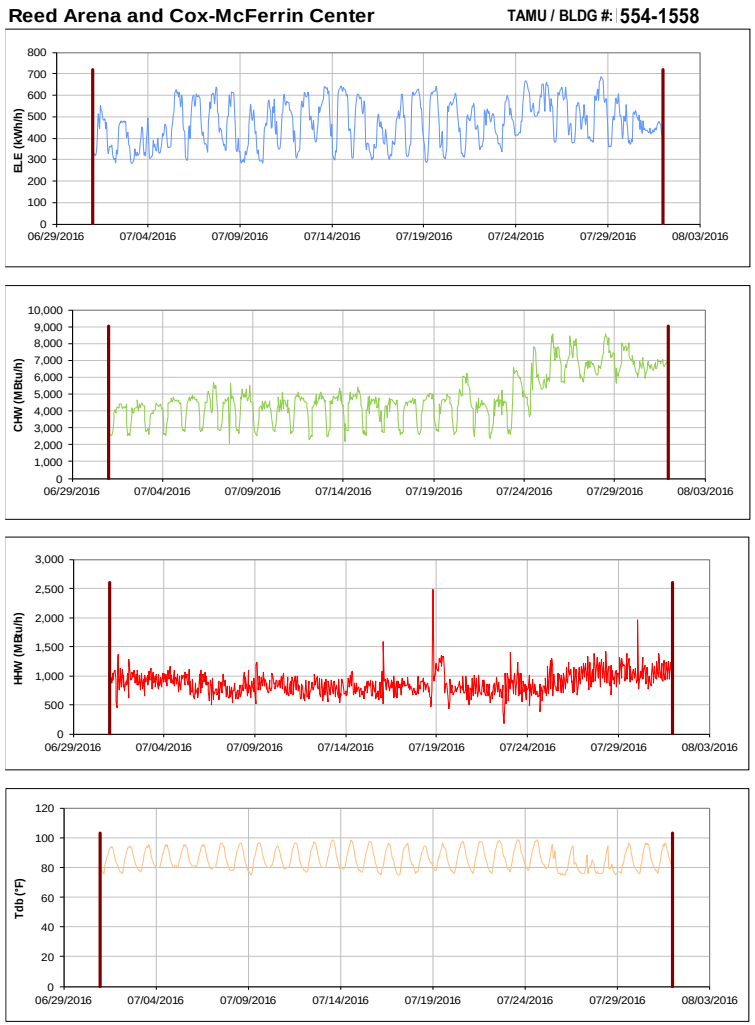


Figure III-165 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Reed Arena and Cox-McFerrin Center during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

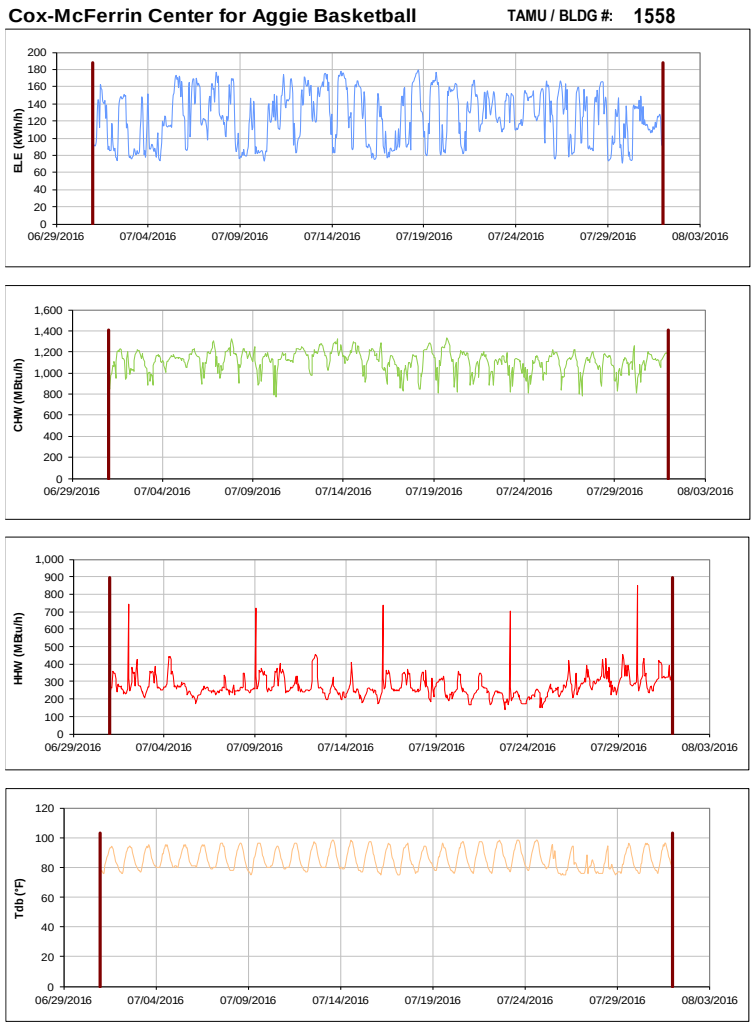


Figure III-166 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Cox-McFerrin Center for Aggie Basketball during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

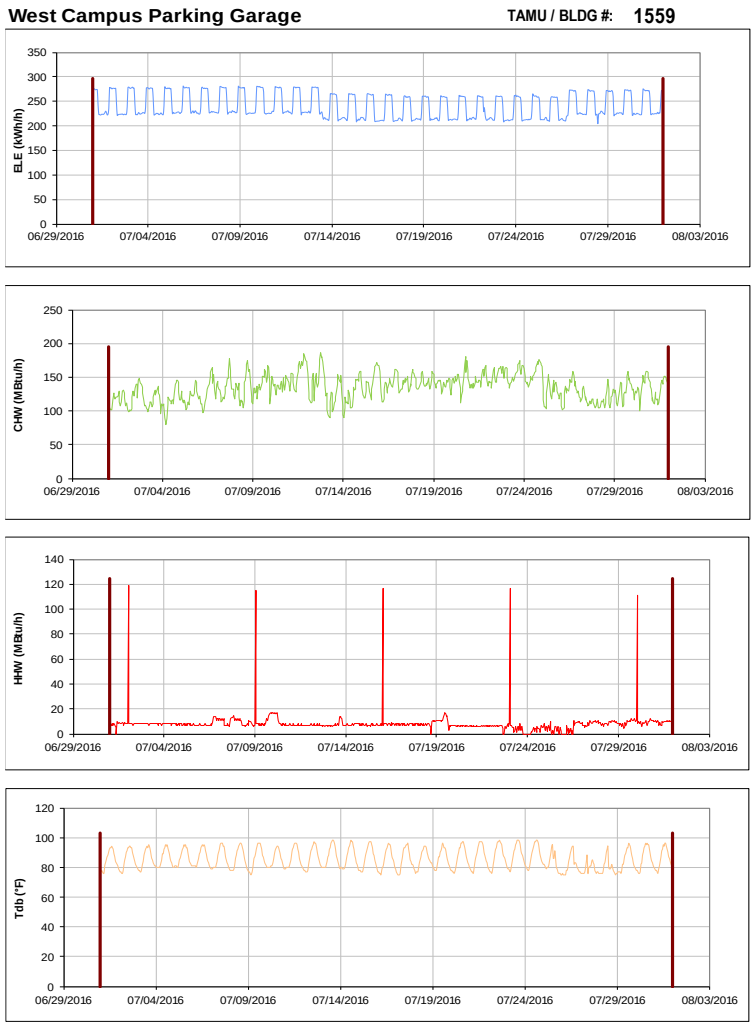


Figure III-167 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for West Campus Parking Garage during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

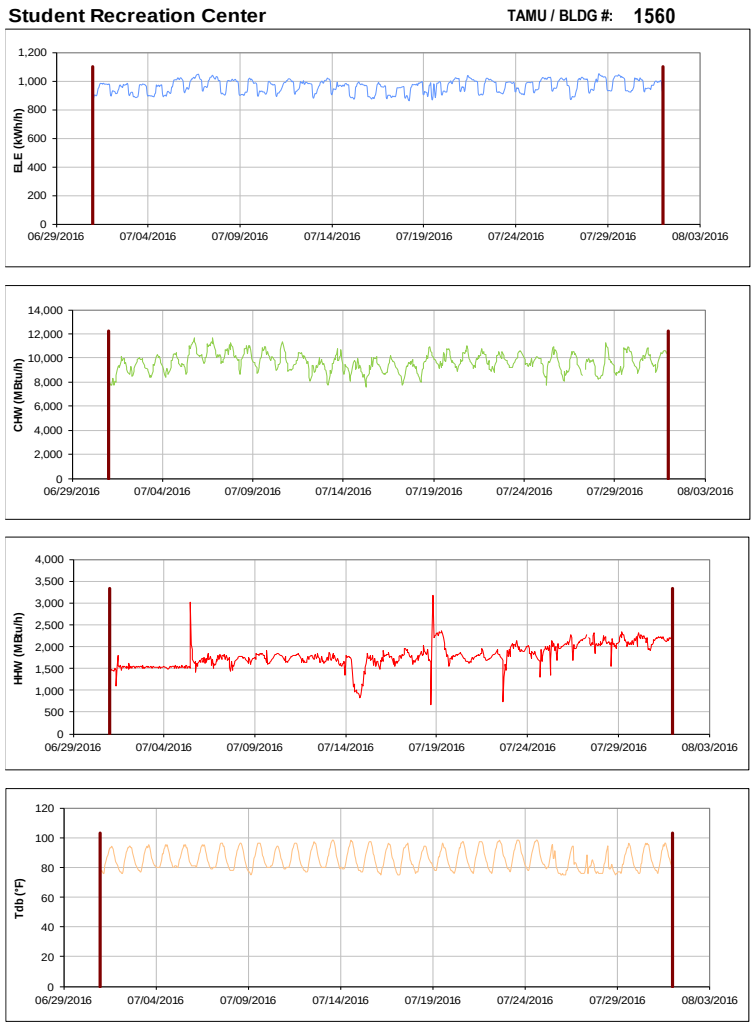


Figure III-168 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Student Recreation Center during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

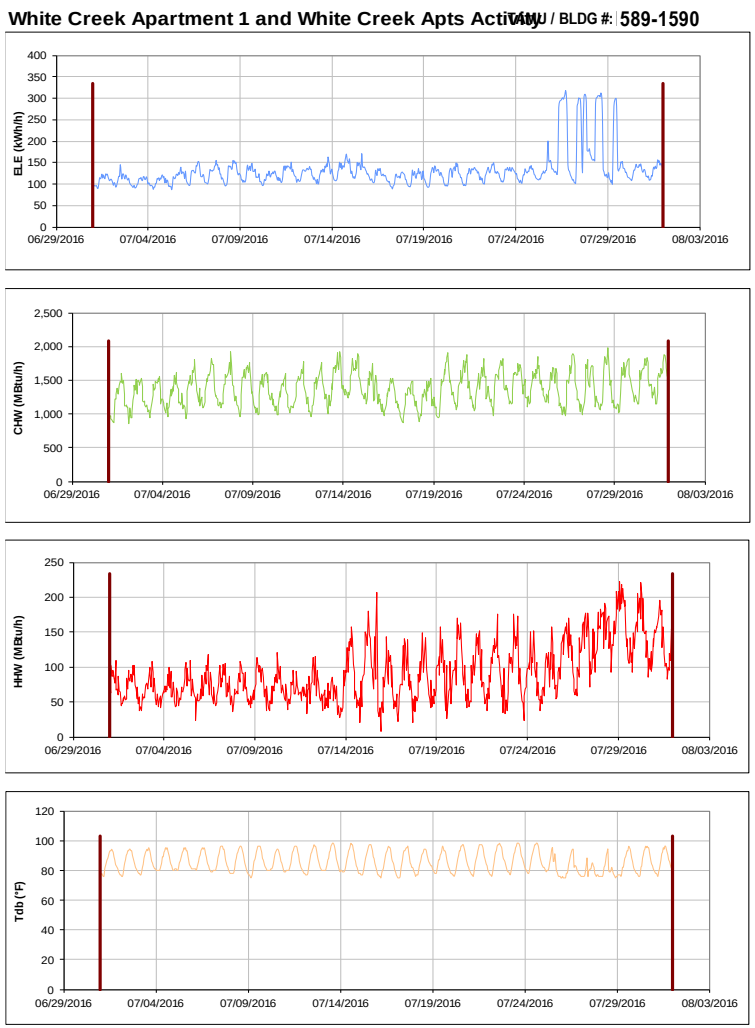


Figure III-169 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for White Creek Apartment 1 and White Creek Apts Activity Center during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

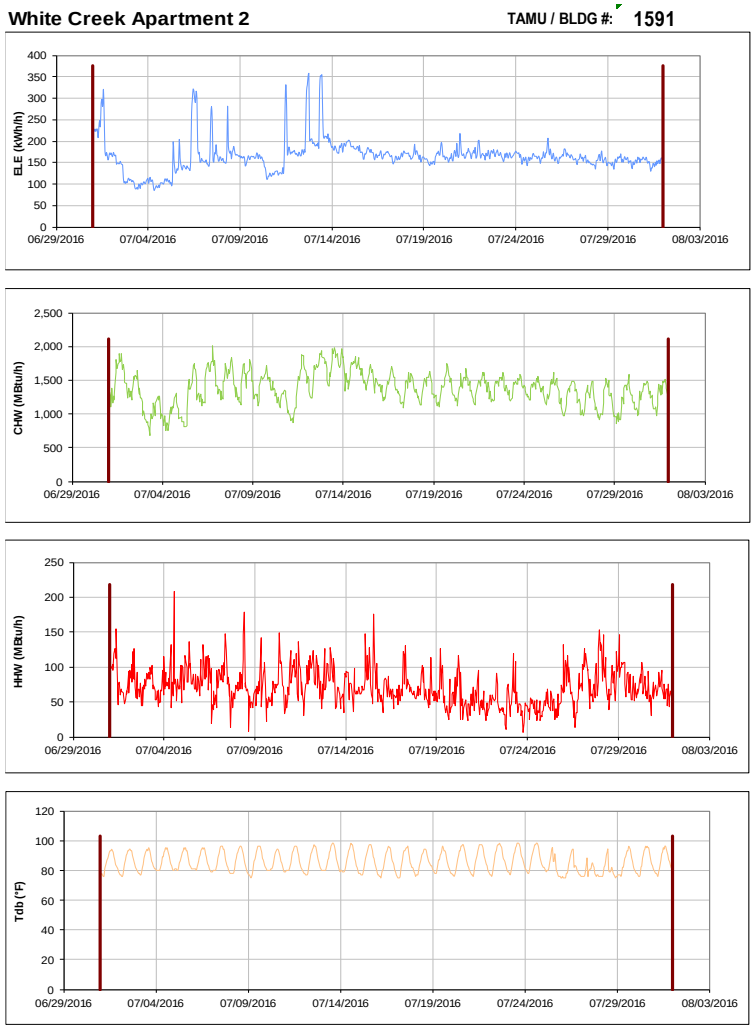


Figure III-170 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for White Creek Apartment 2 during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

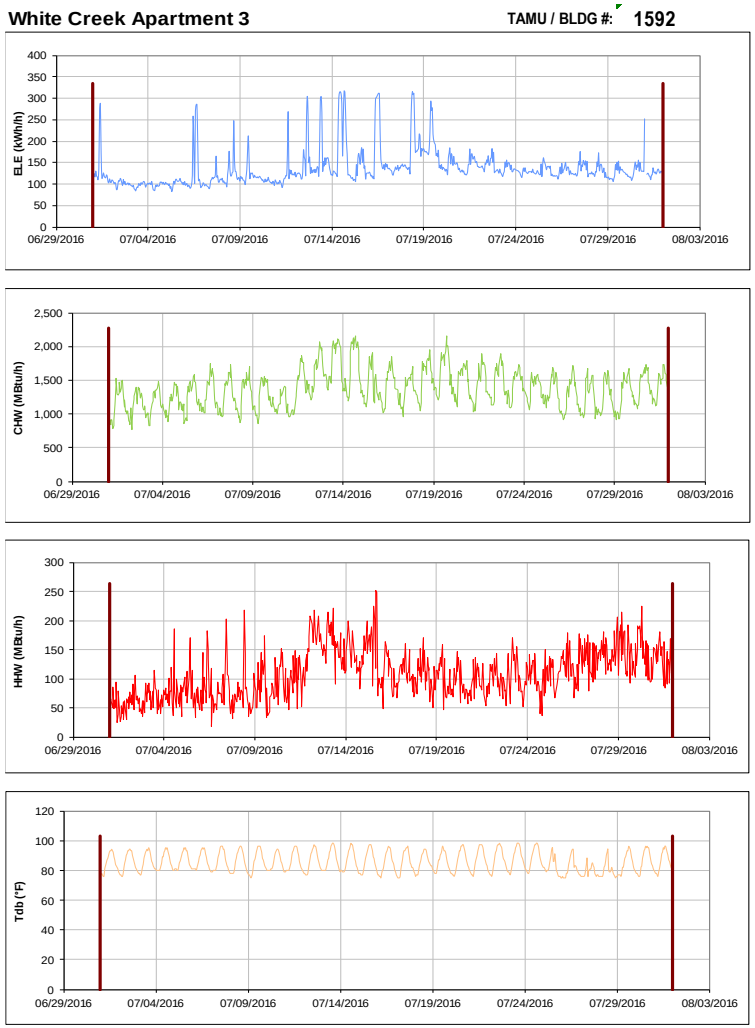


Figure III-171 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for White Creek Apartment 3 during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

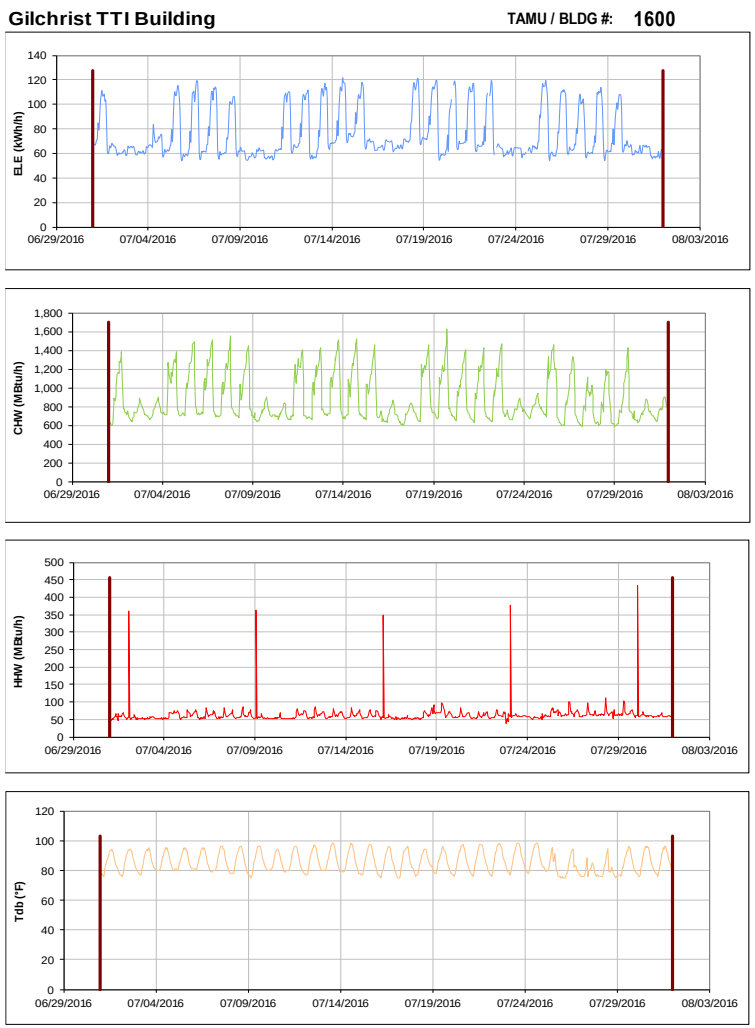


Figure III-172 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Gilchrist TTI Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

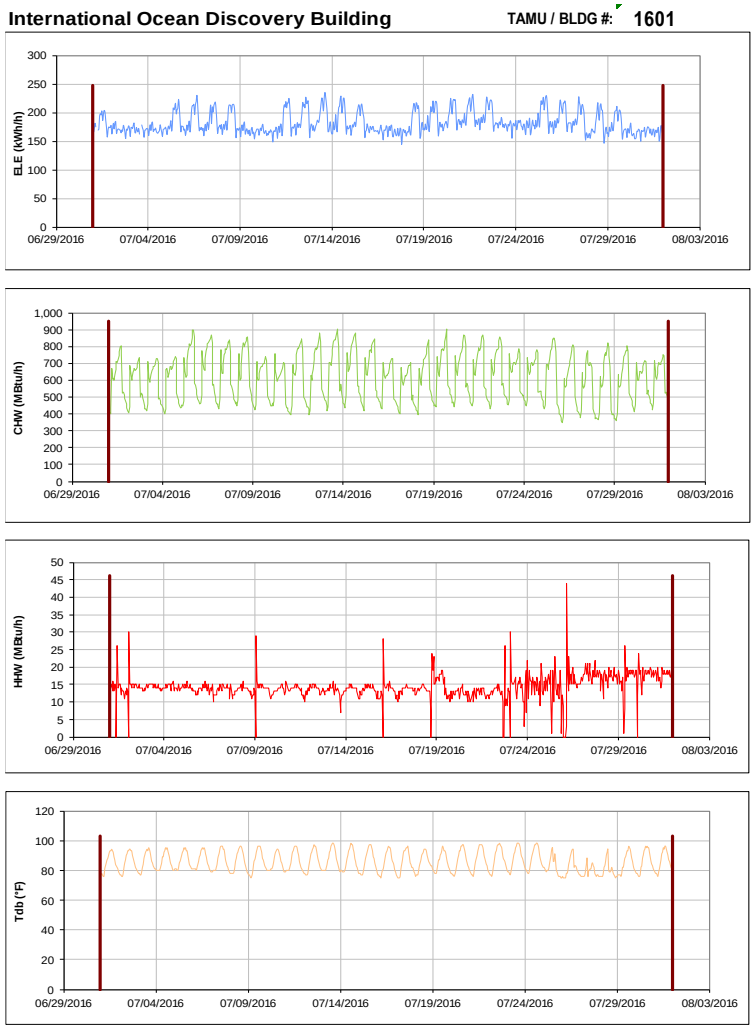


Figure III-173 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for International Ocean Discovery Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

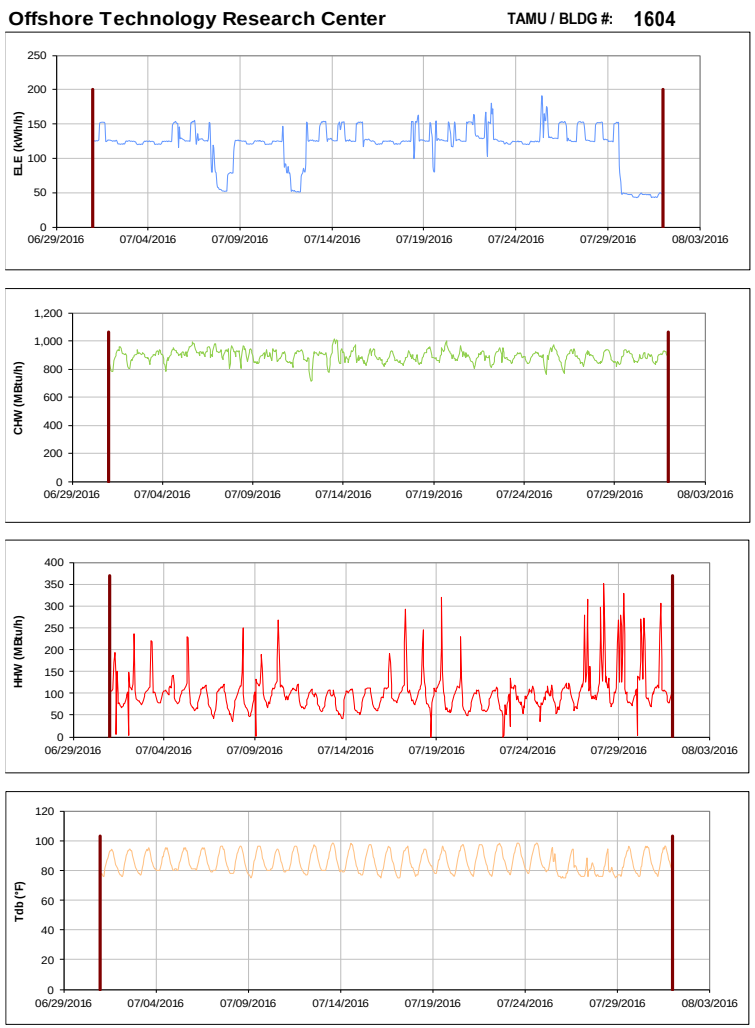


Figure III-174 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Offshore Technology Research Center during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

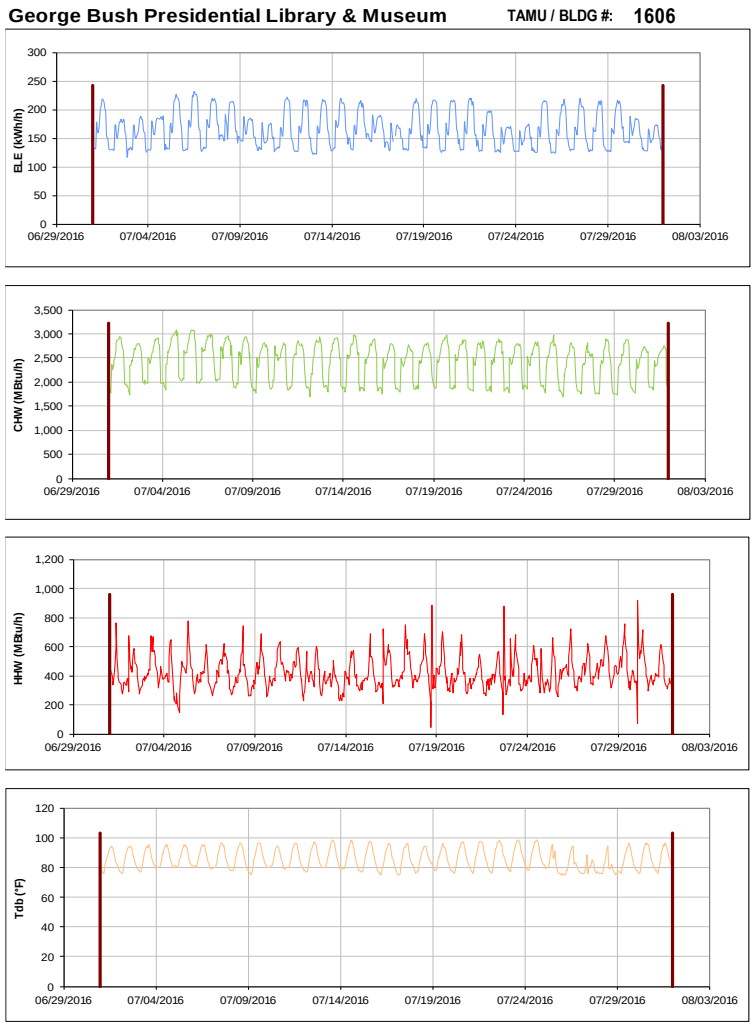


Figure III-175 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for George Bush Presidential Library & Museum during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

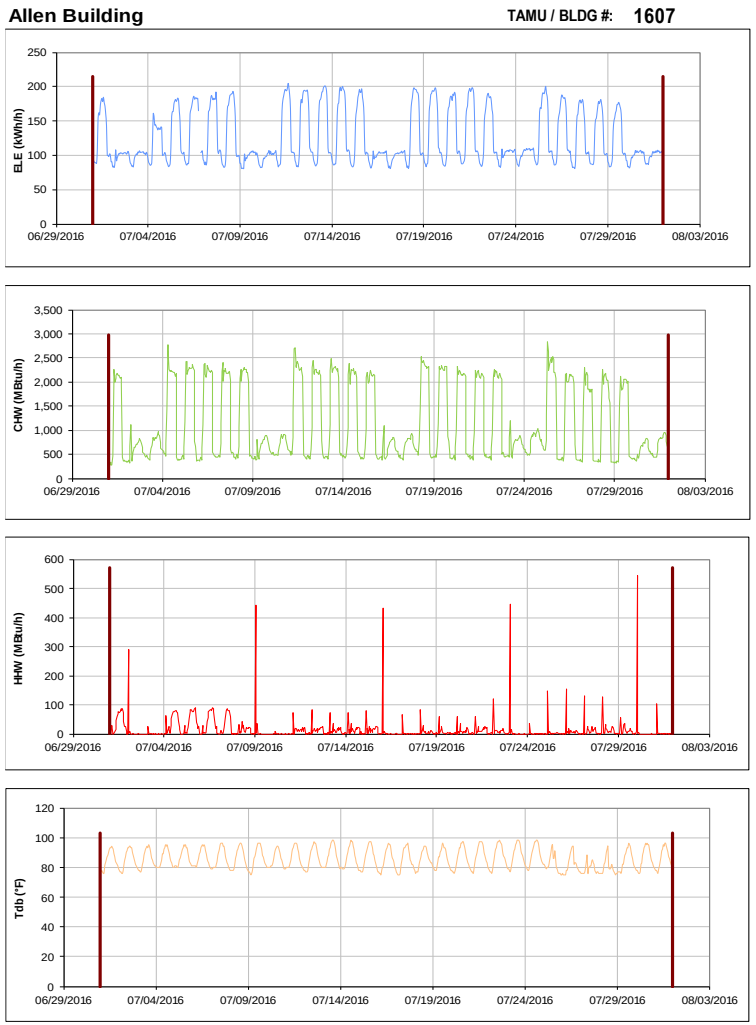


Figure III-176 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Allen Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

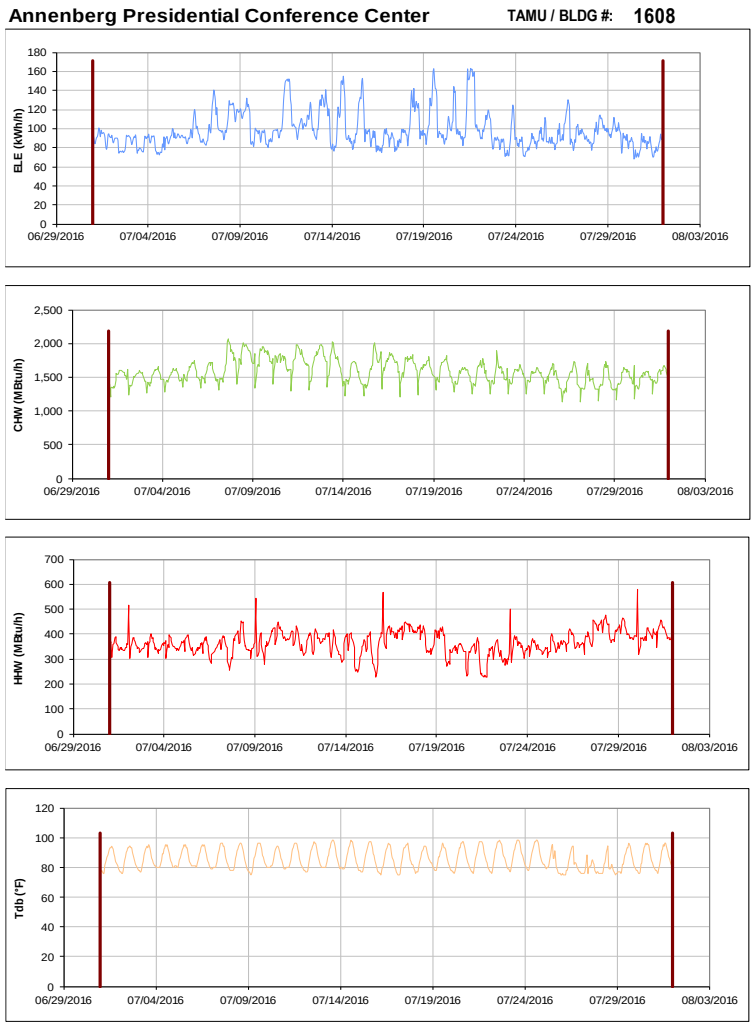


Figure III-177 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Annenberg Presidential Conference Center during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

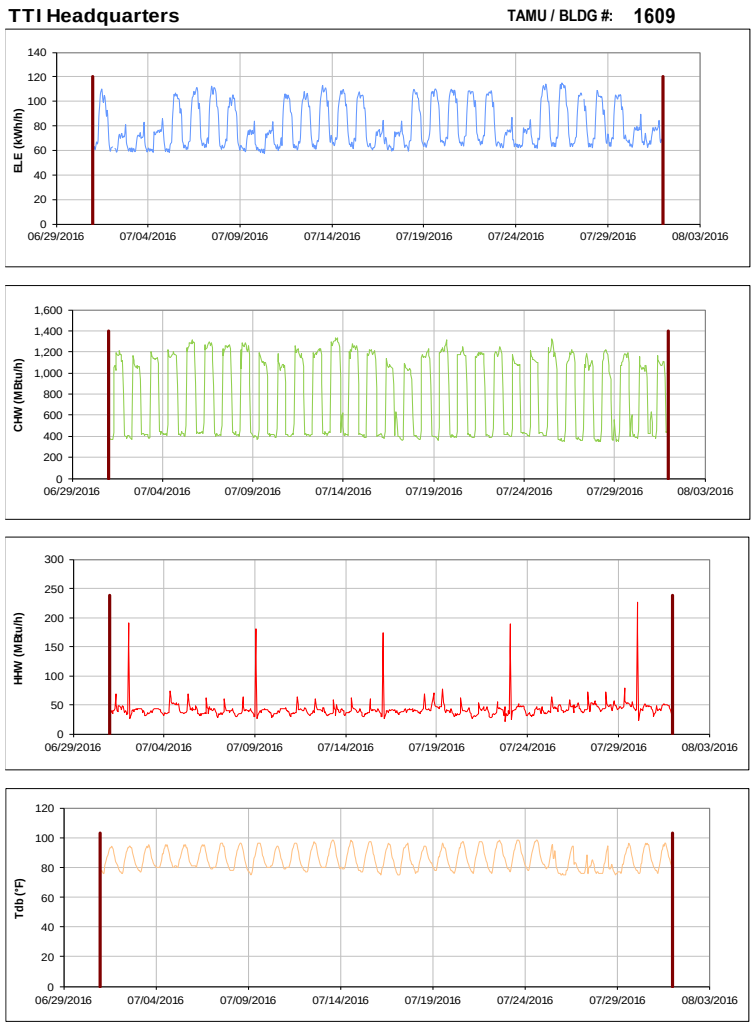


Figure III-178 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for TTI Headquarters during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

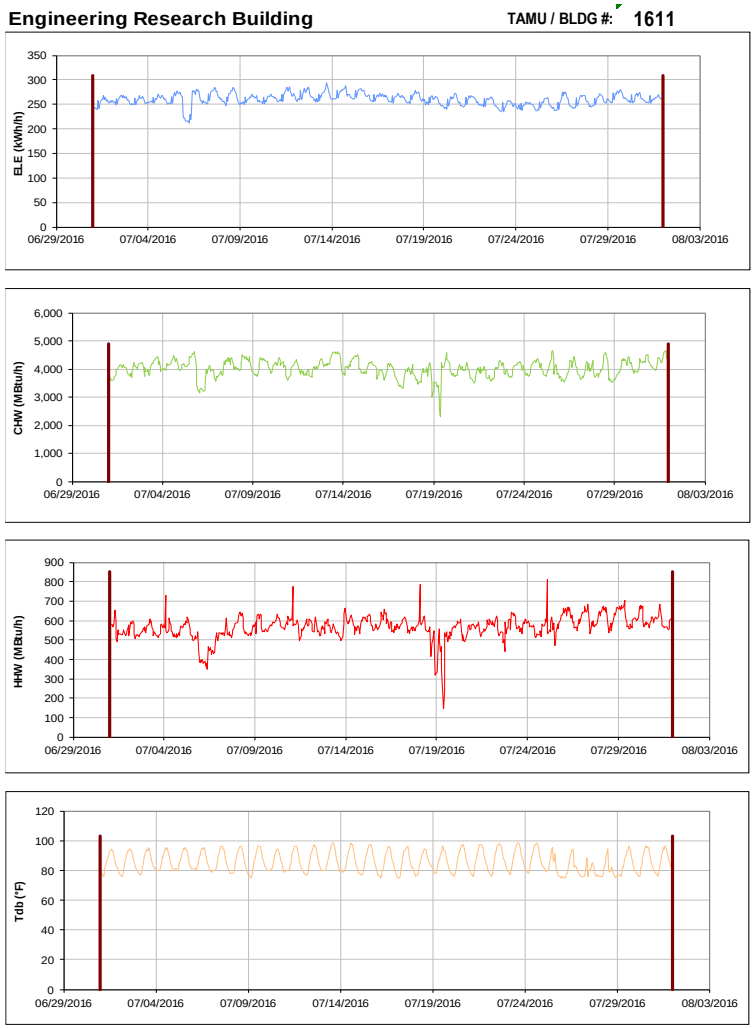


Figure III-179 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Engineering Research Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

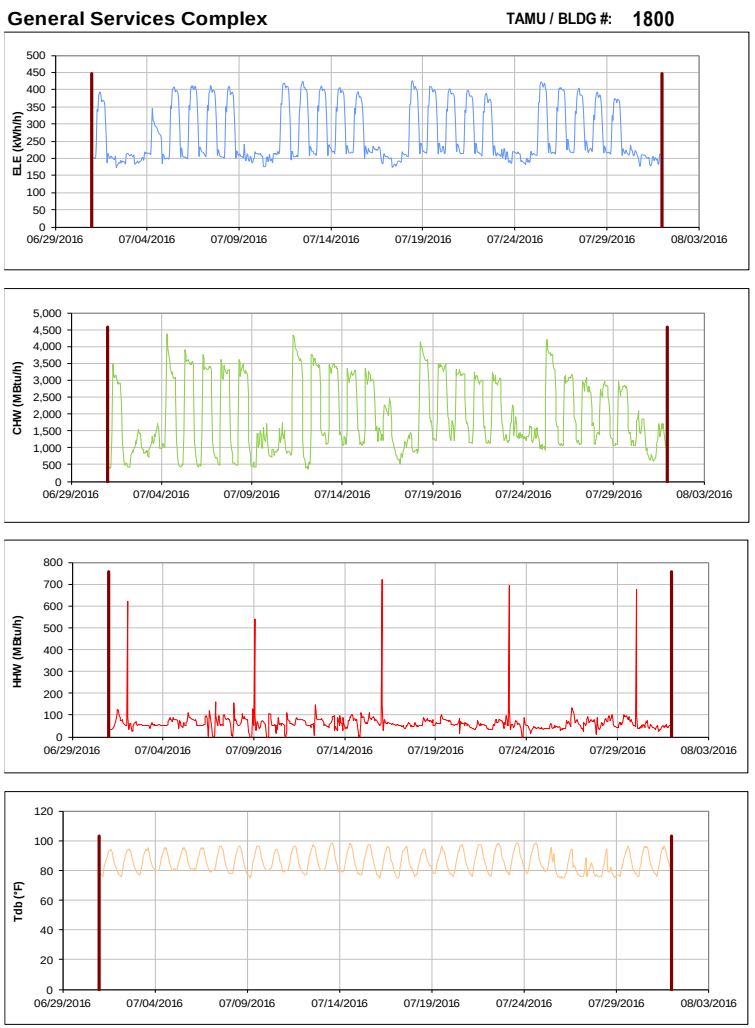


Figure III-180 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for General Services Complex during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

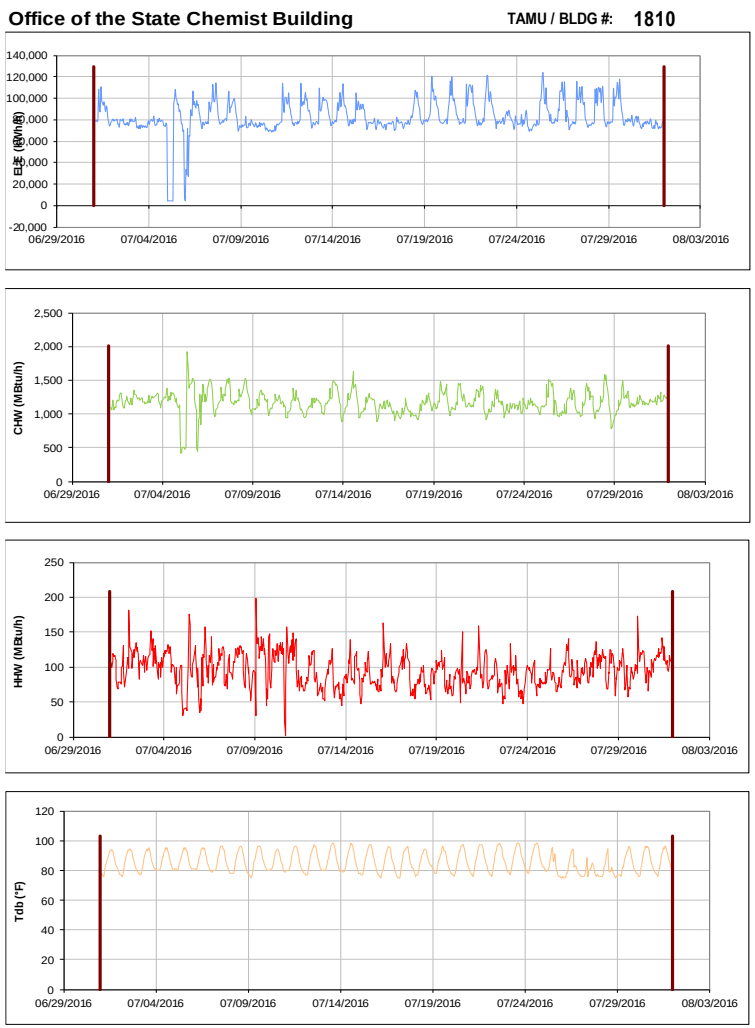


Figure III-181 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Office of the State Chemist Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

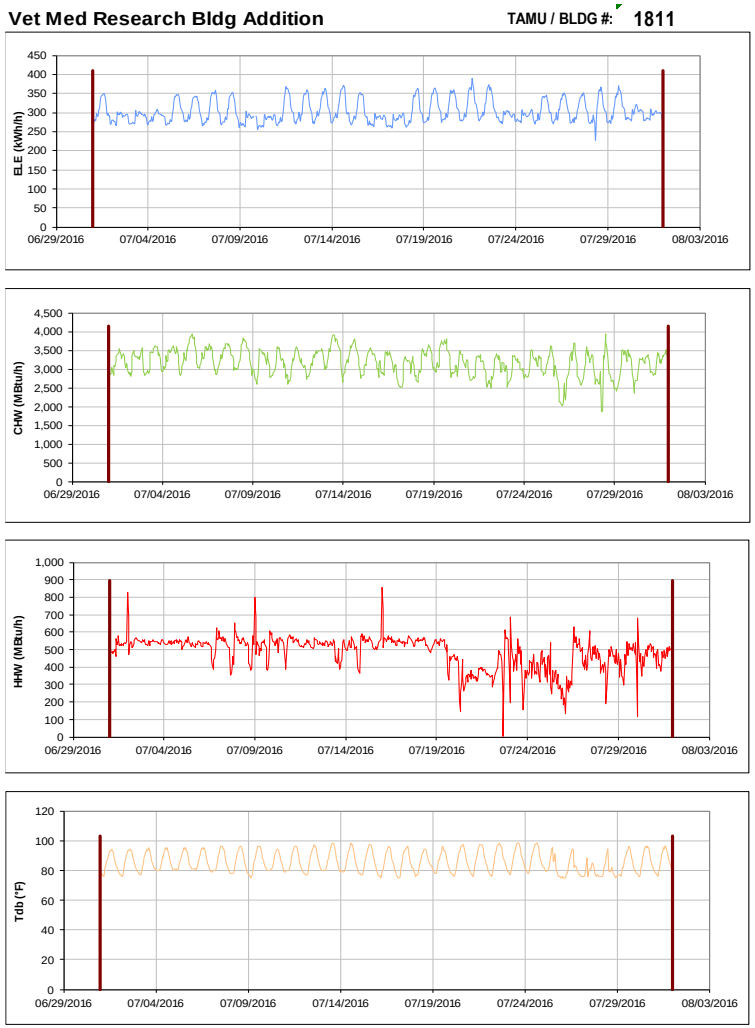


Figure III-182 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Vet Med Research Bldg Addition during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

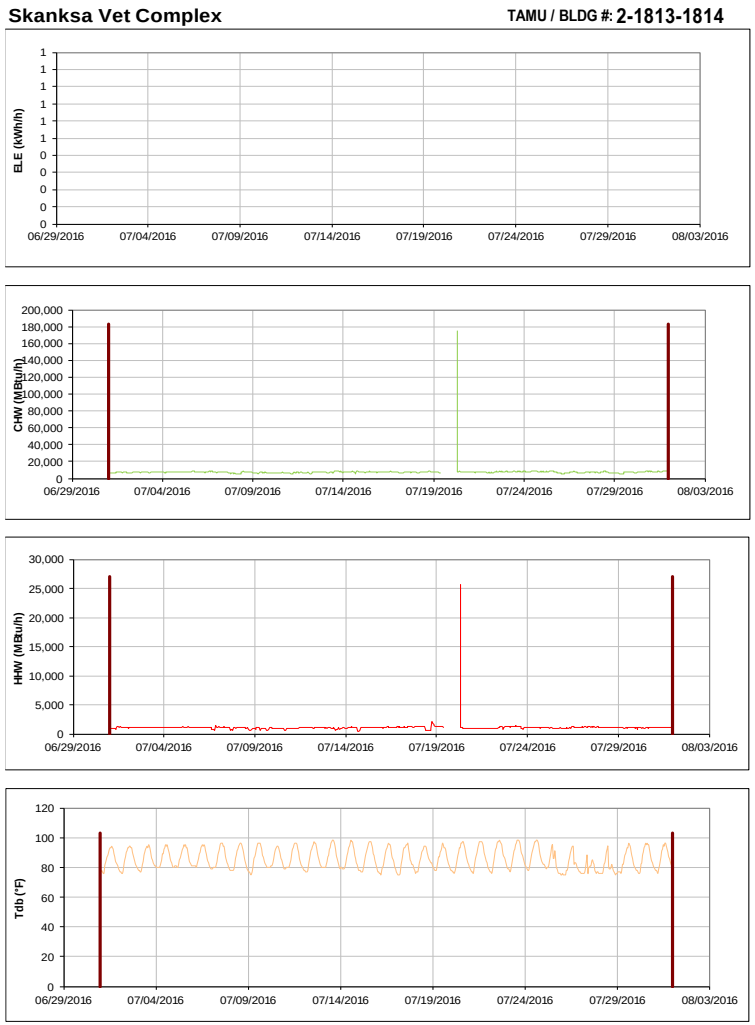


Figure III-183 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Skanksa Vet Complex during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-184 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Texas Institute for Genomic Medicine during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

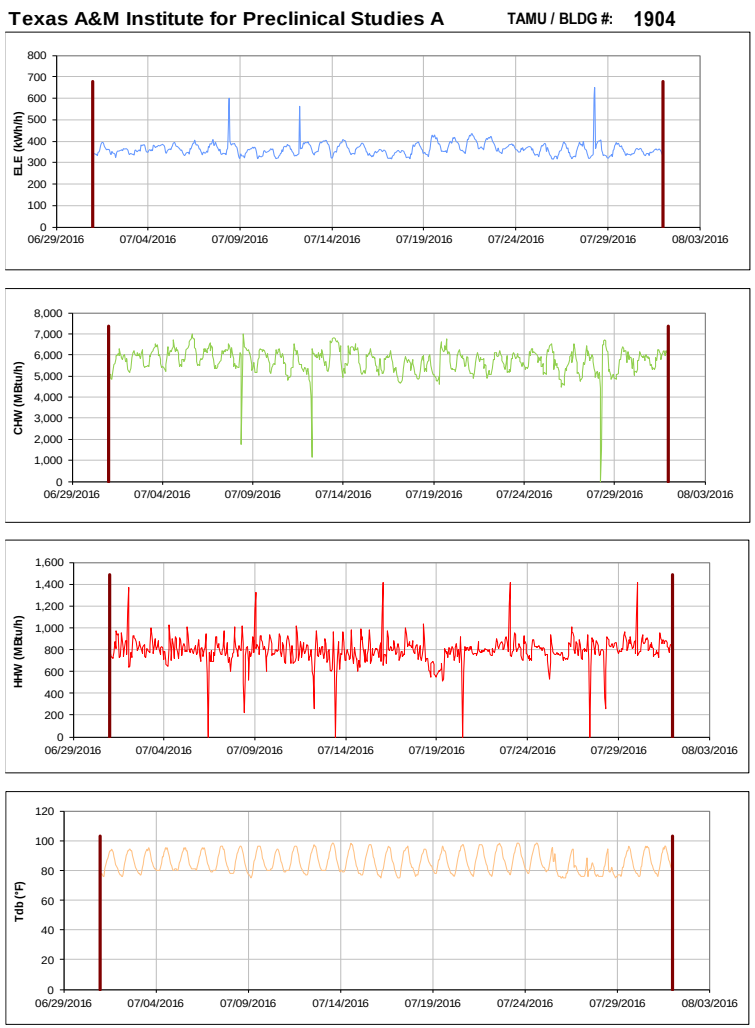


Figure III-185 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Texas A&M Institute for Preclinical Studies A during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

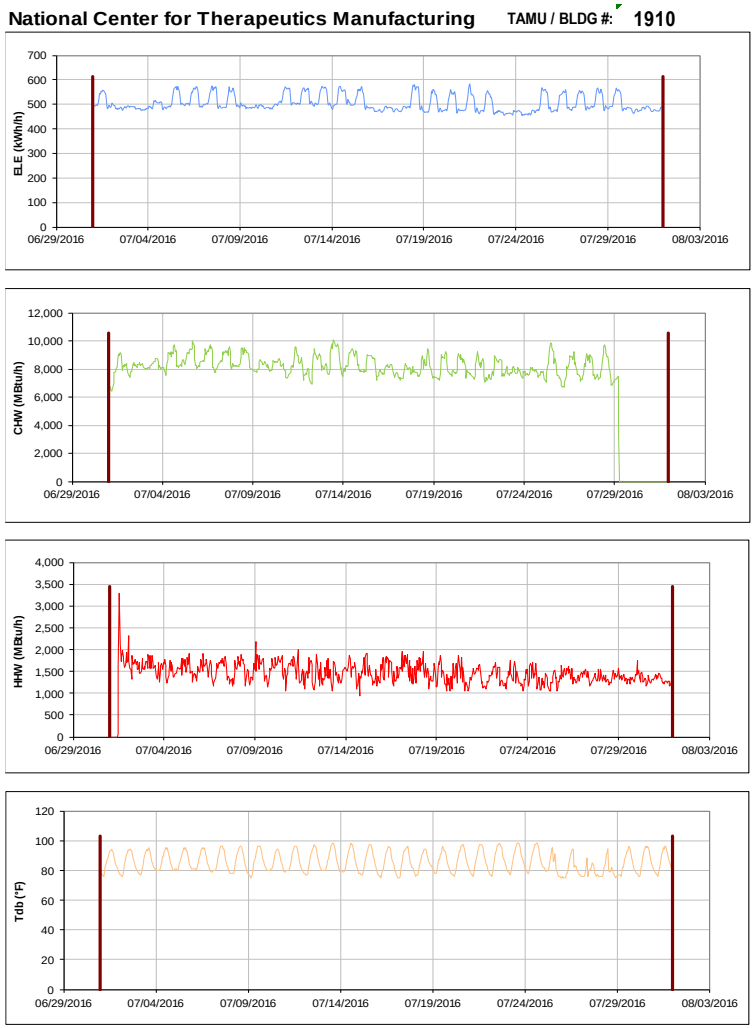


Figure III-186 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for National Center for Therapeutics Manufacturing during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

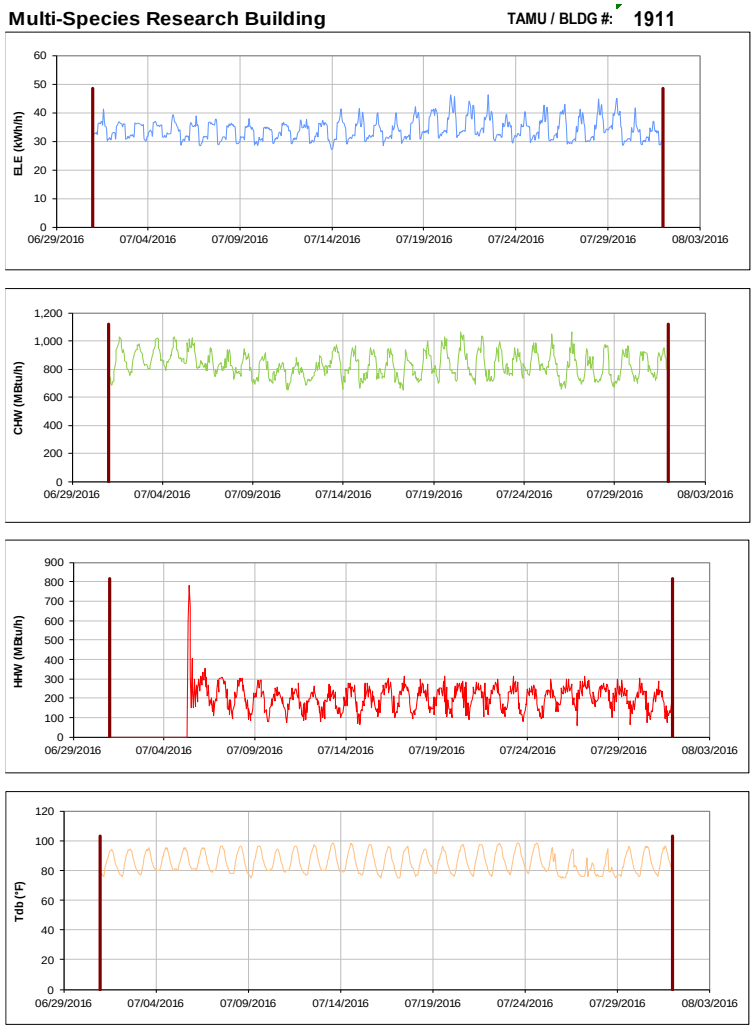


Figure III-187 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Multi-Species Research Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

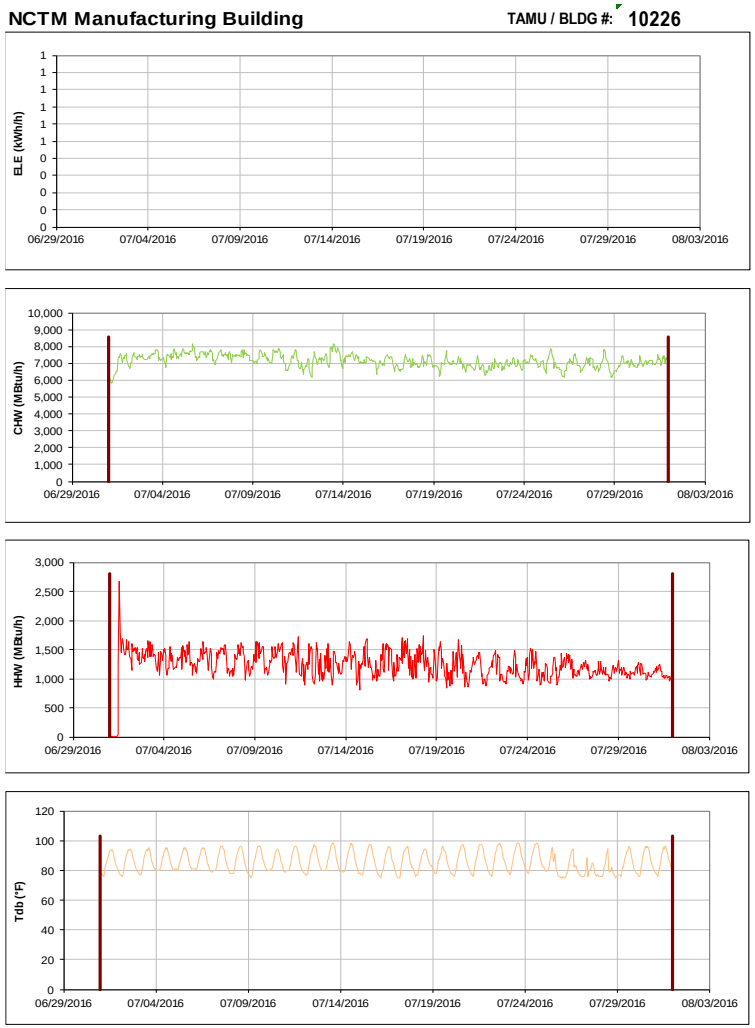


Figure III-188 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for NCTM Manufacturing Building during the Month of July 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

IV. Energy Balance Plots for July 2016 Consumption

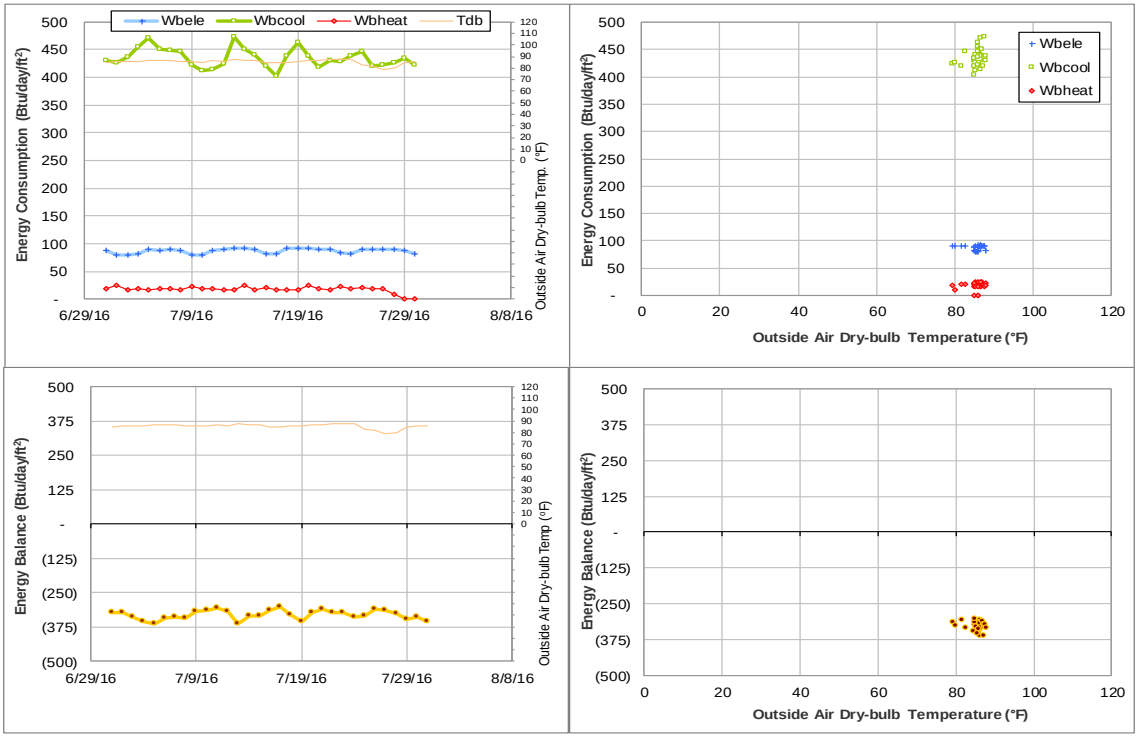


Figure IV-1 Emerging Technologies Building TAMU BLDG # 270 Energy Balance Plot during July 2016

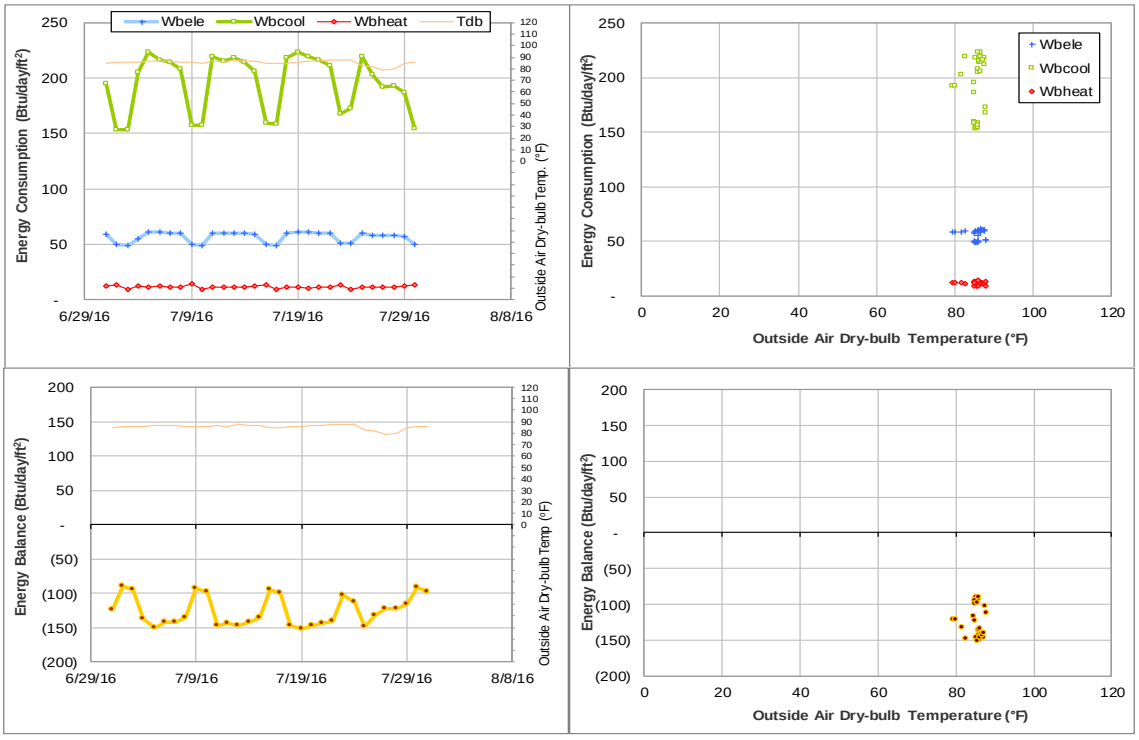


Figure IV-2 Liberal Arts and Arts & Humanities Building TAMU BLDG # 275 Energy Balance Plot during July 2016

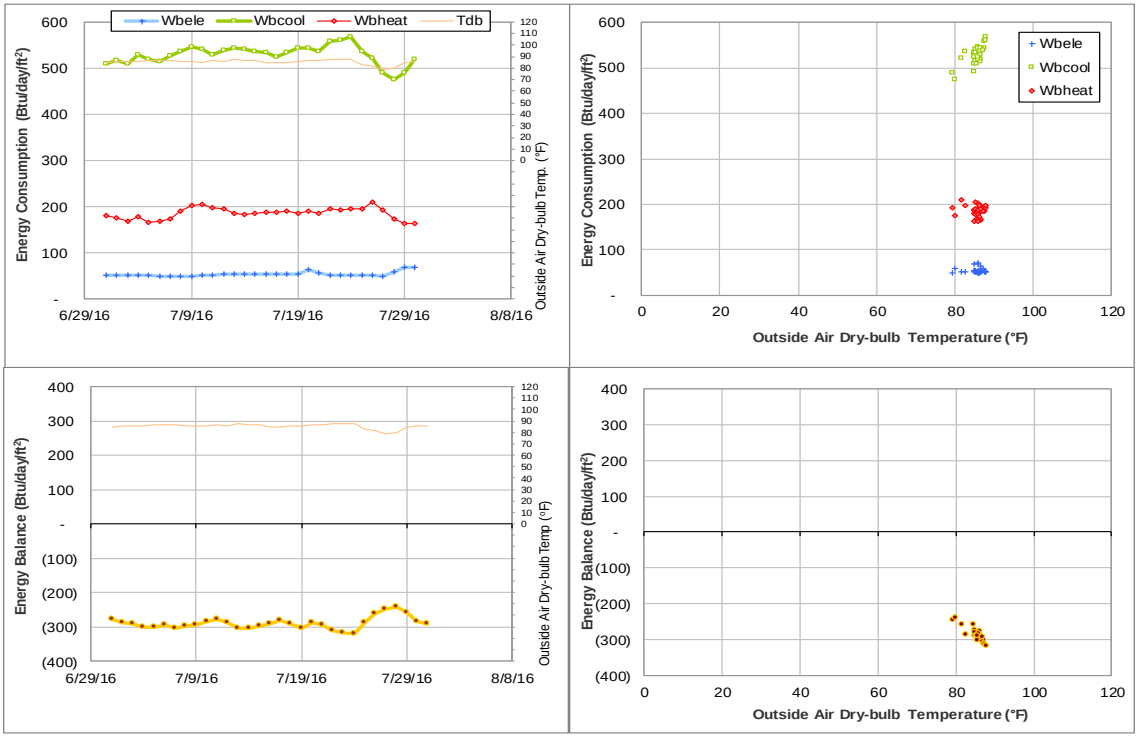


Figure IV-3 Wells Residence Hall TAMU BLDG # 290 Energy Balance Plot during July 2016

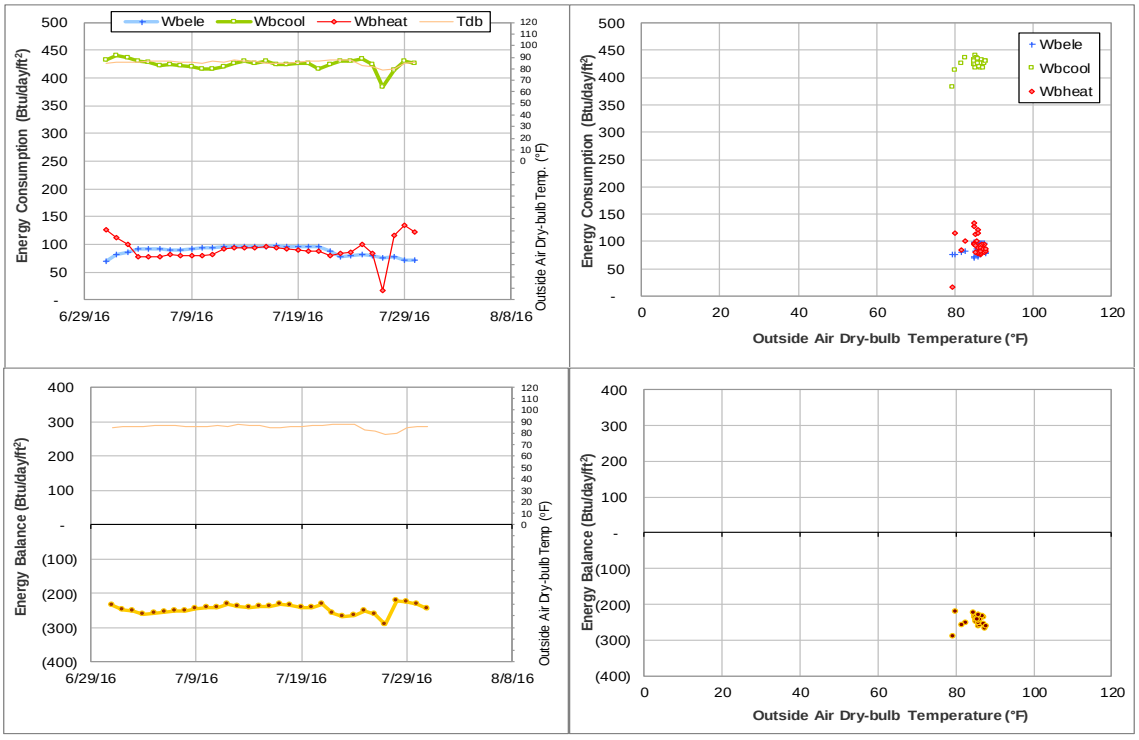


Figure IV-4 Rudder Residence Hall TAMU BLDG # 291 Energy Balance Plot during July 2016

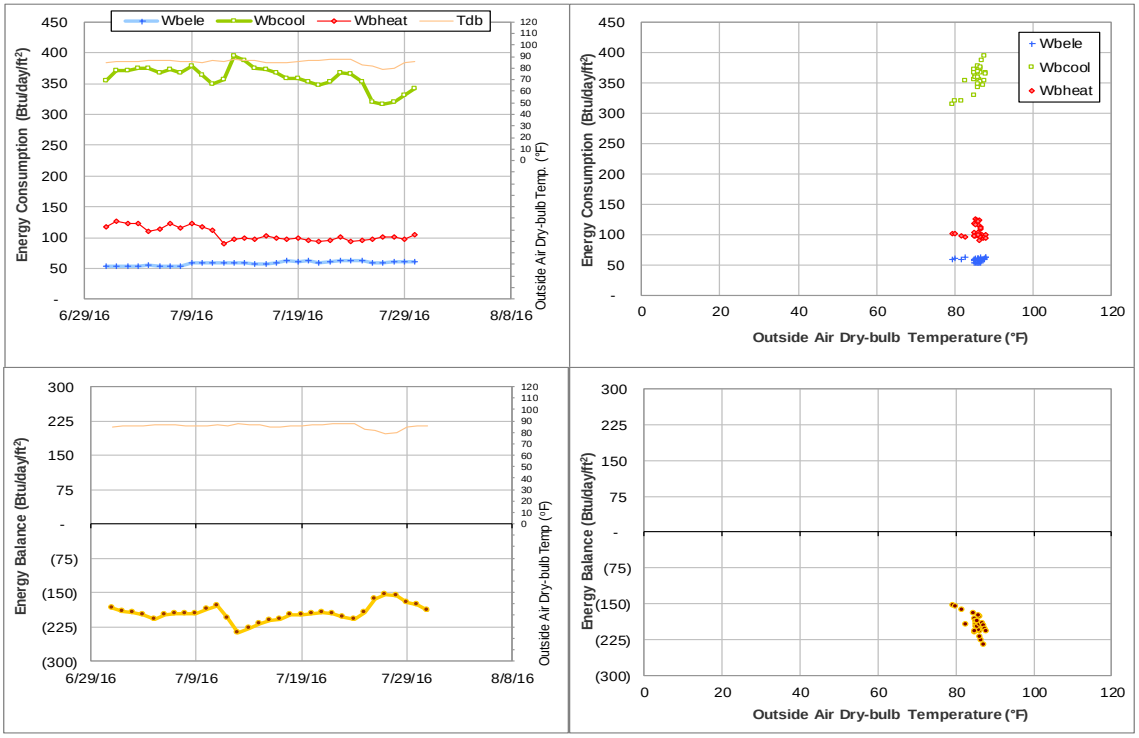


Figure IV-5 Eppright Residence Hall TAMU BLDG # 292 Energy Balance Plot during July 2016

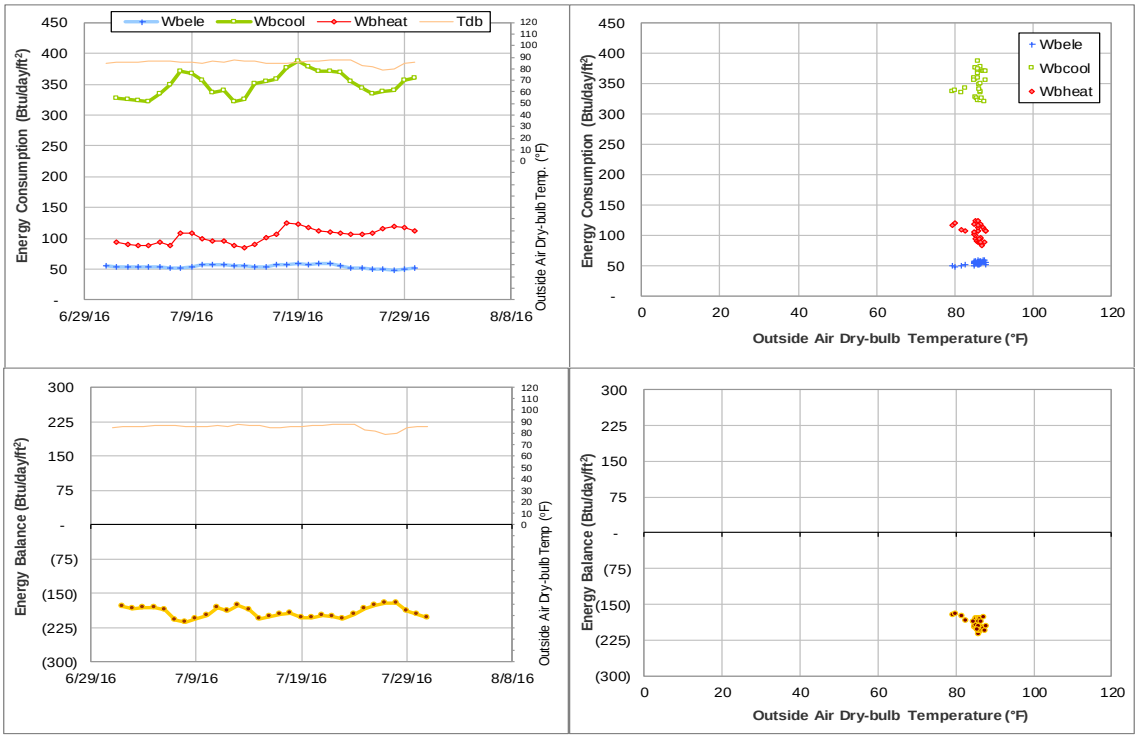


Figure IV-6 Appelt Residence Hall TAMU BLDG # 293 Energy Balance Plot during July 2016

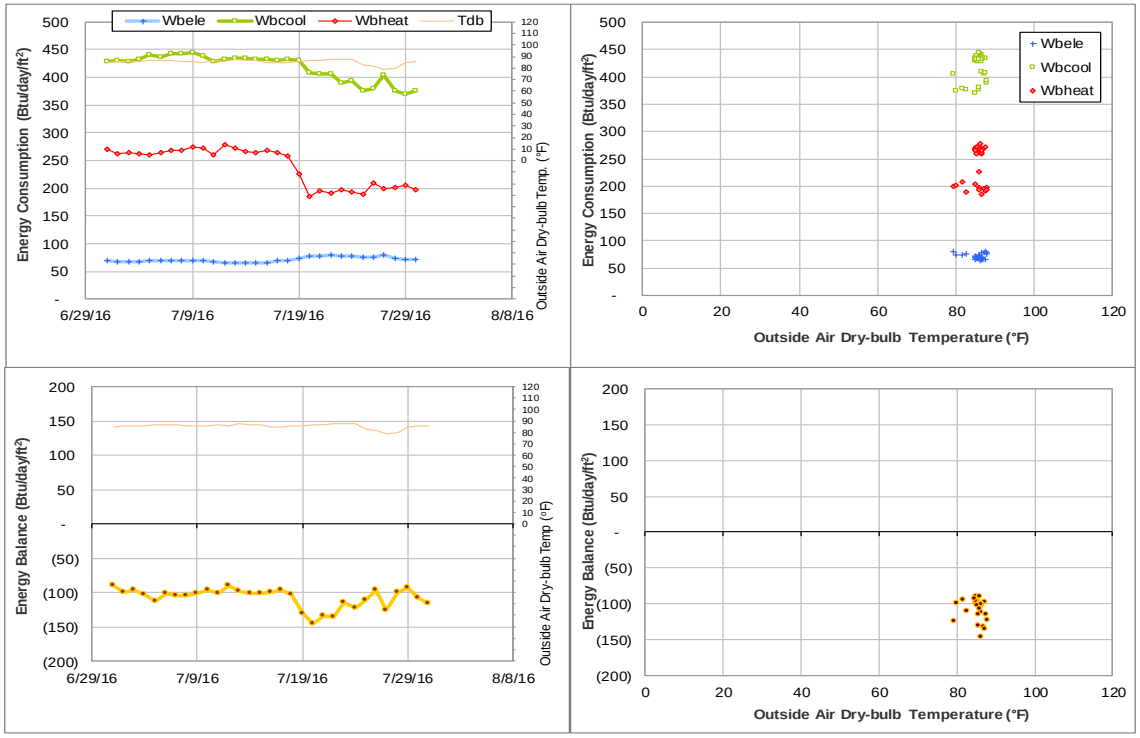


Figure IV-7 Lechner Residence Hall TAMU BLDG # 294 Energy Balance Plot during July 2016

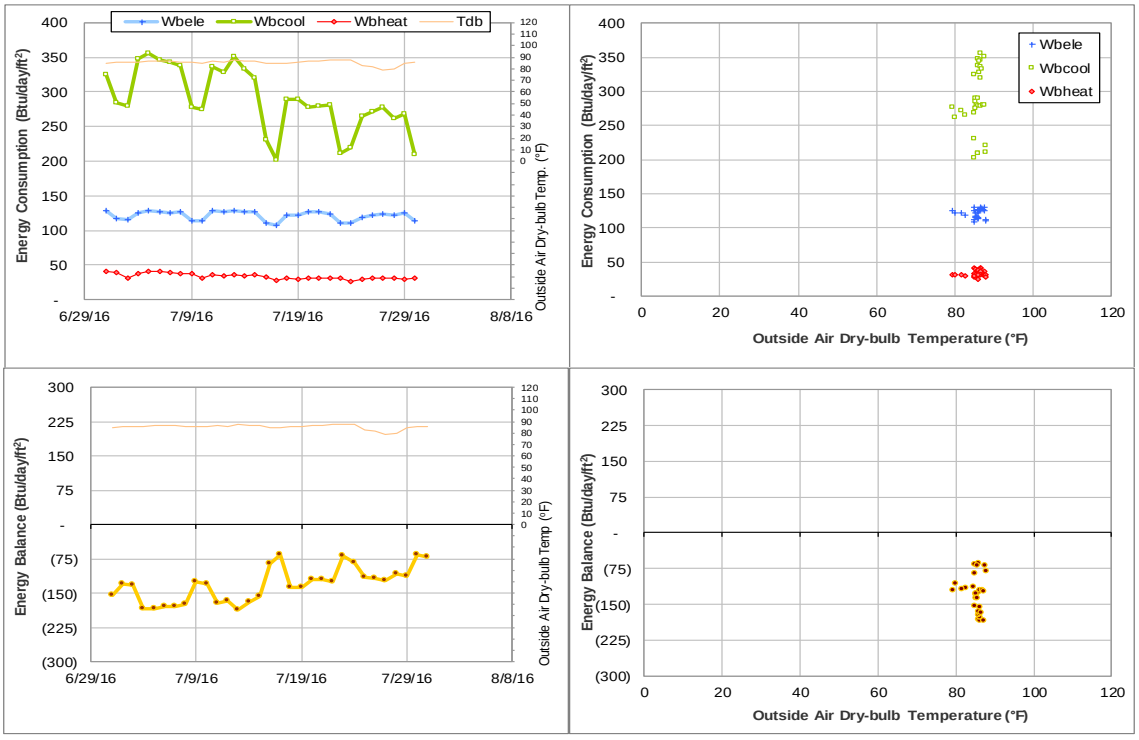


Figure IV-8 Mitchell Inst. for Fundamental Phys & Astronomy TAMU BLDG # 296 Energy Balance Plot during July 2016

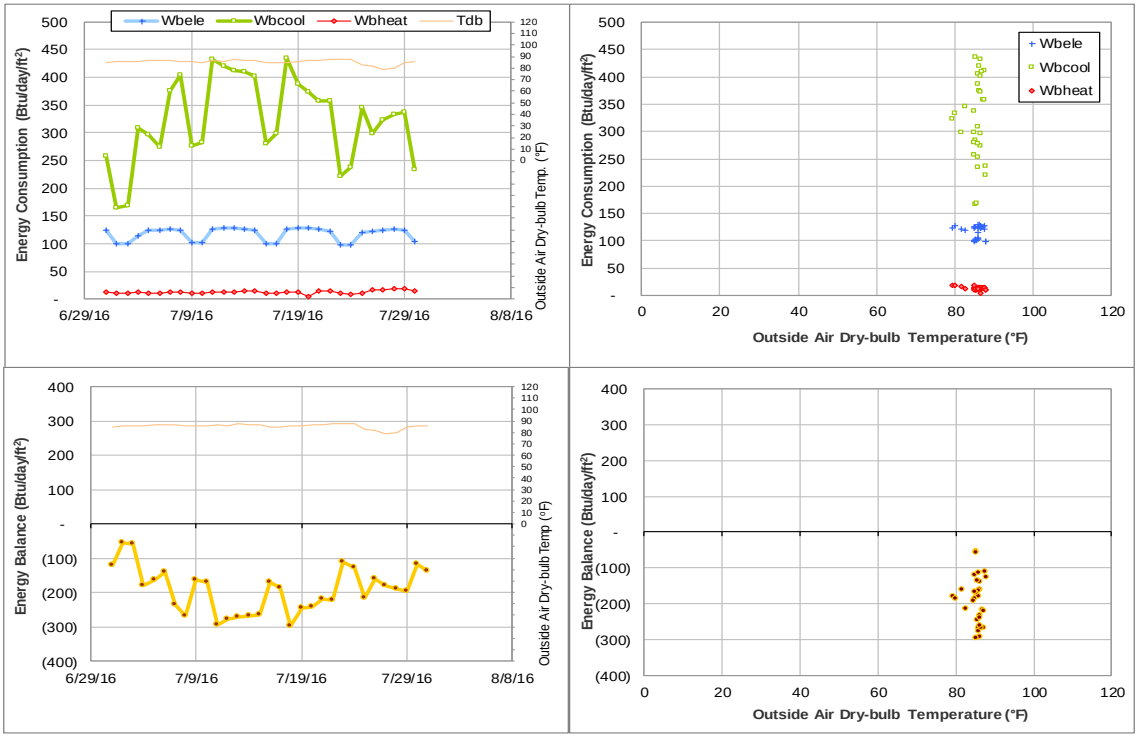


Figure IV-9 CE TTI Office & Lab Building TAMU BLDG # 325 Energy Balance Plot during July 2016

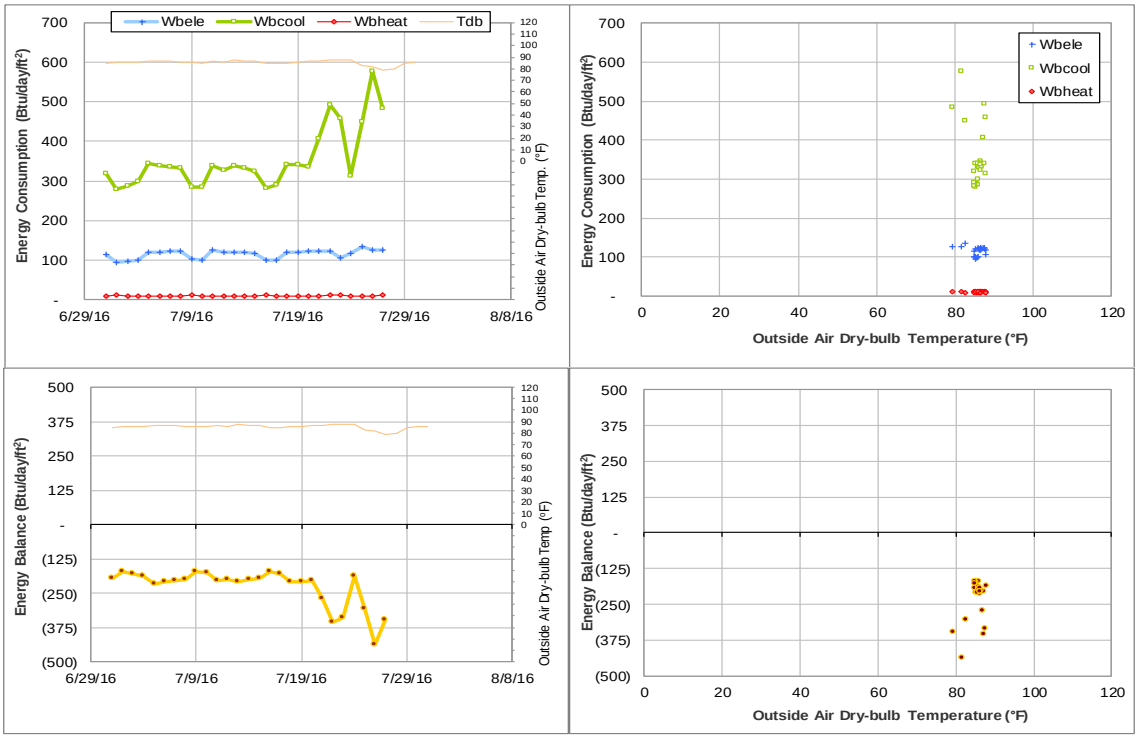


Figure IV-10 Bright Aerospace Building TAMU BLDG # 353 Energy Balance Plot during July 2016

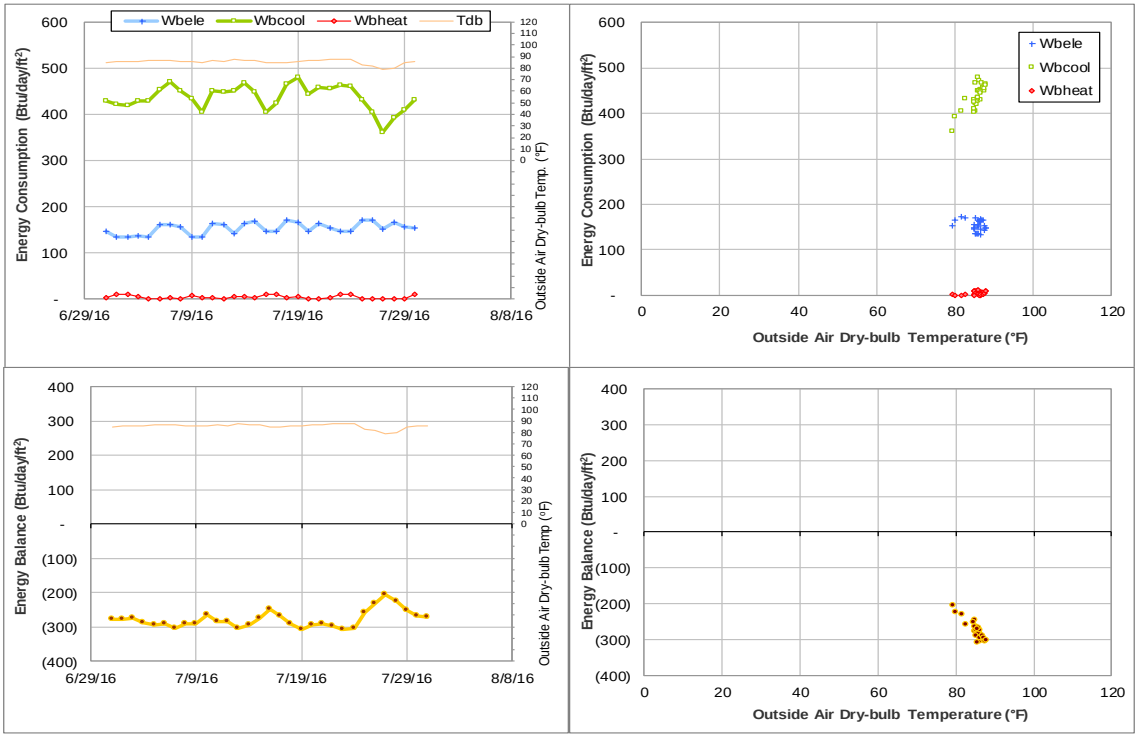


Figure IV-11 Davis Football Player Development Center TAMU BLDG # 358 Energy Balance Plot during July 2016

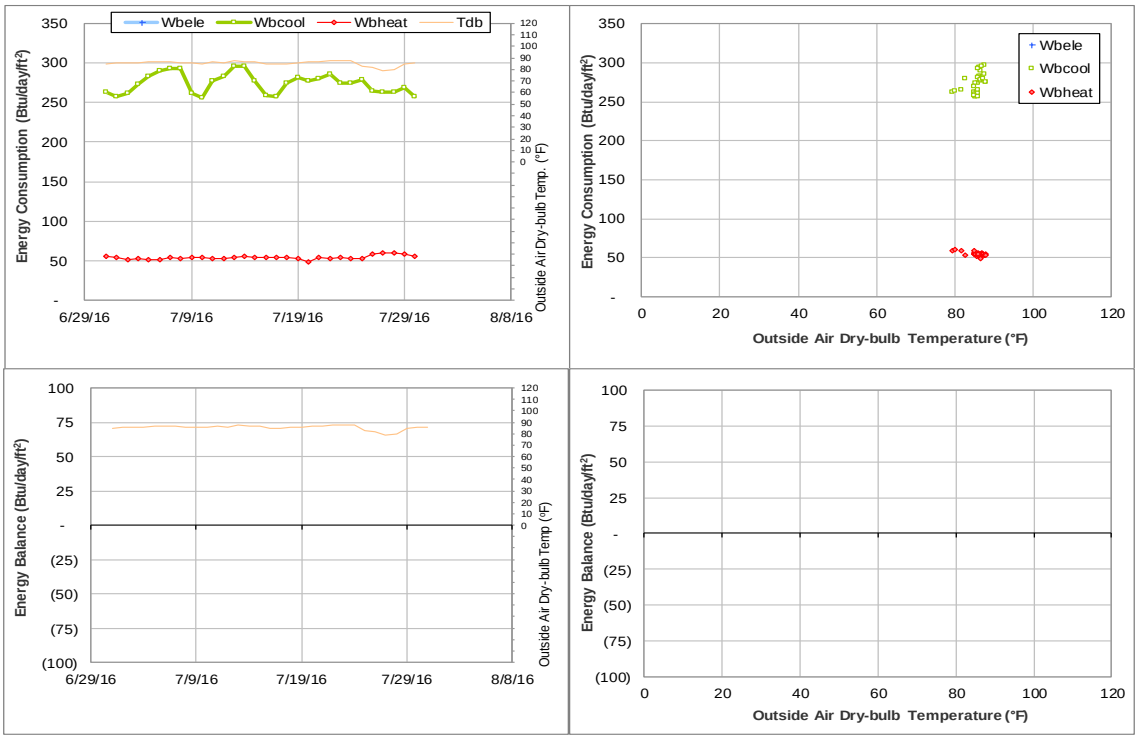


Figure IV-12 Architecture Building B&C TAMU BLDG # 359 and 432 Energy Balance Plot during July 2016

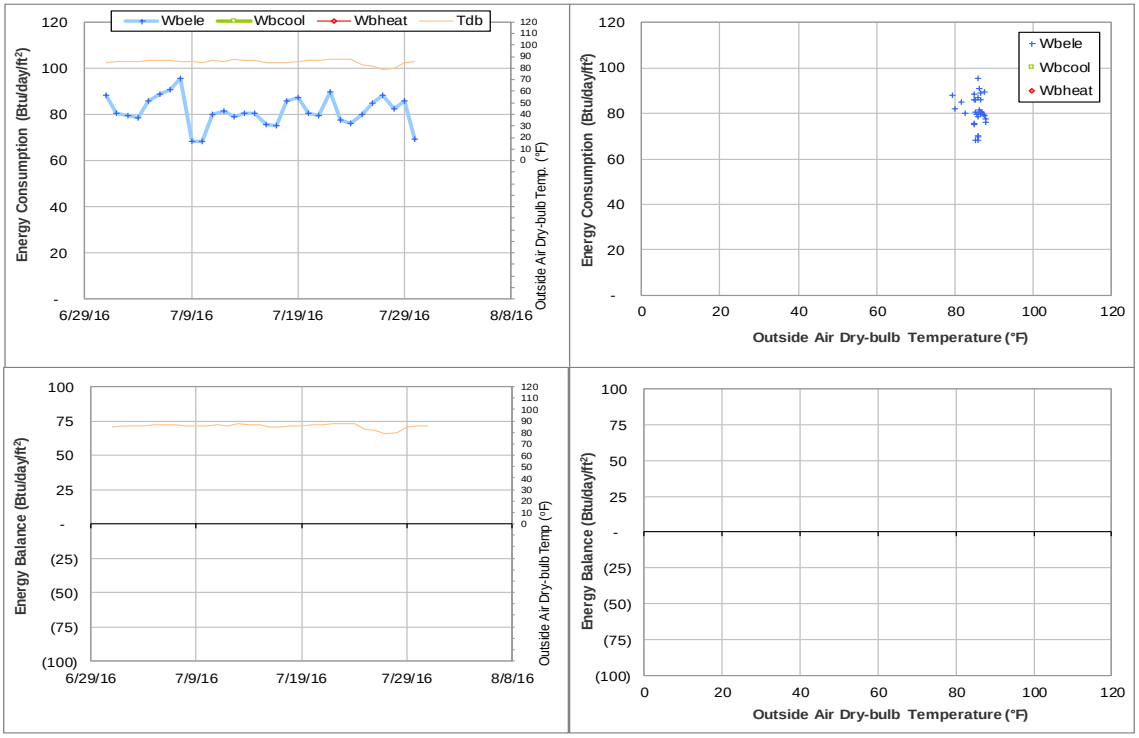


Figure IV-13 Architecture Building B TAMU BLDG # 359 Energy Balance Plot during July 2016

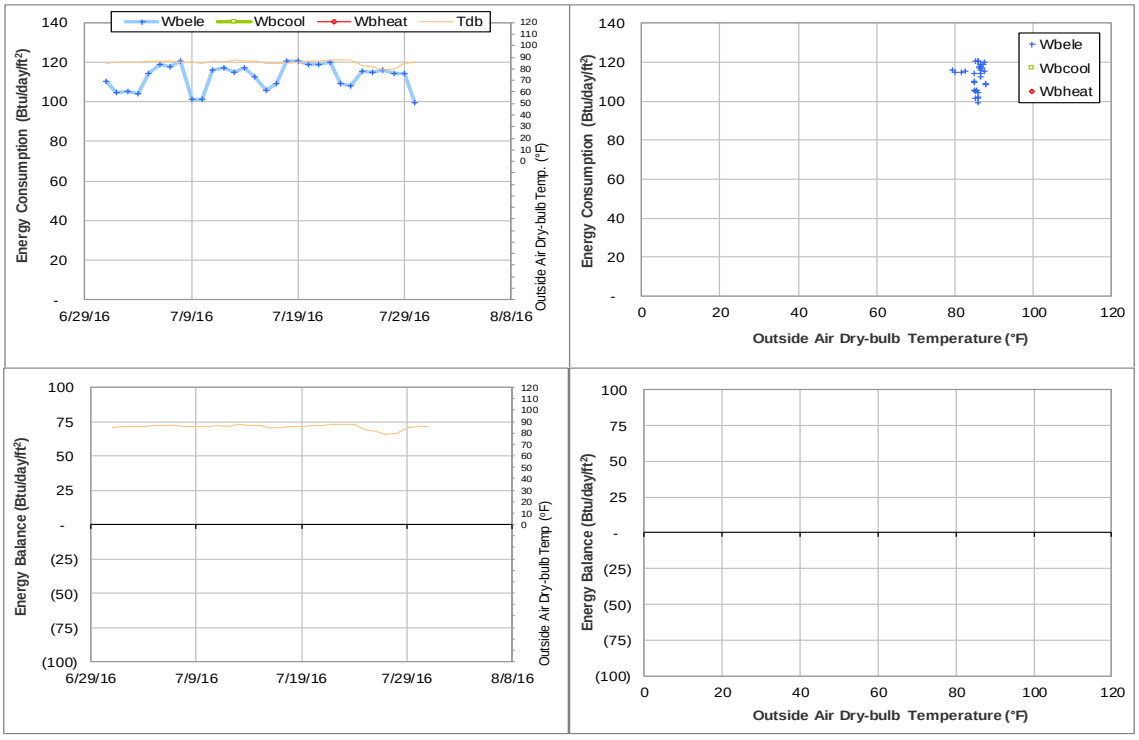


Figure IV-14 Architecture Building C TAMU BLDG # 432 Energy Balance Plot during July 2016

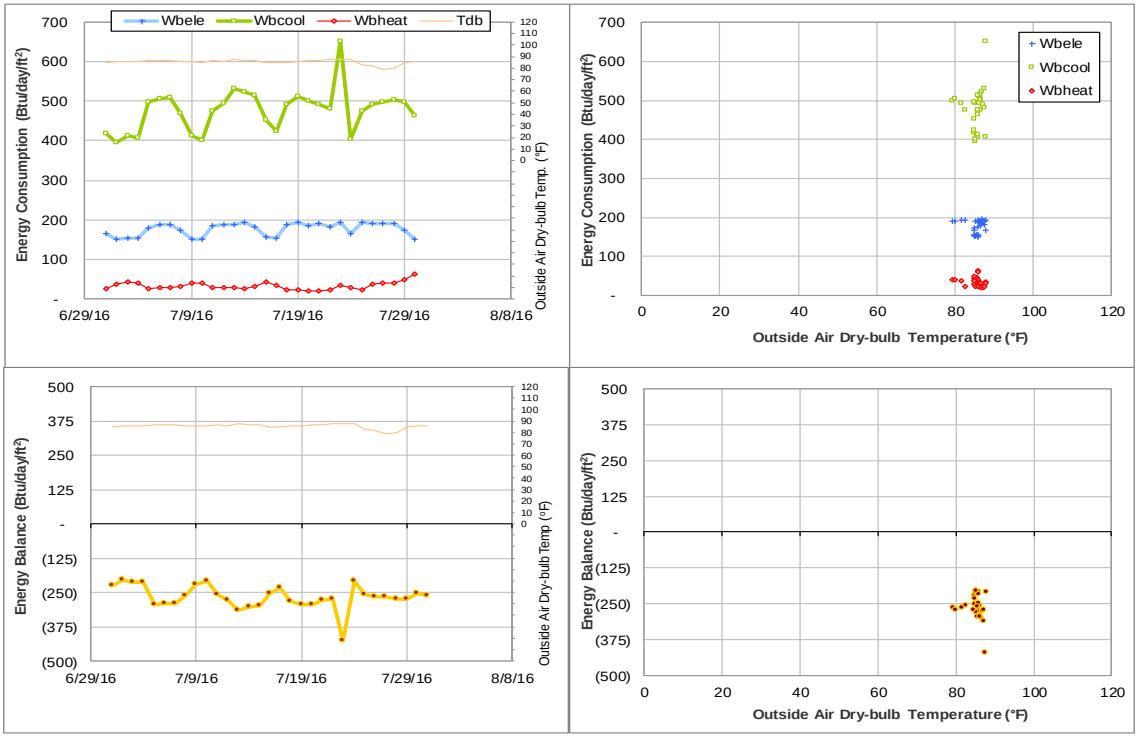


Figure IV-15 Bright Football Complex TAMU BLDG # 361 Energy Balance Plot during July 2016

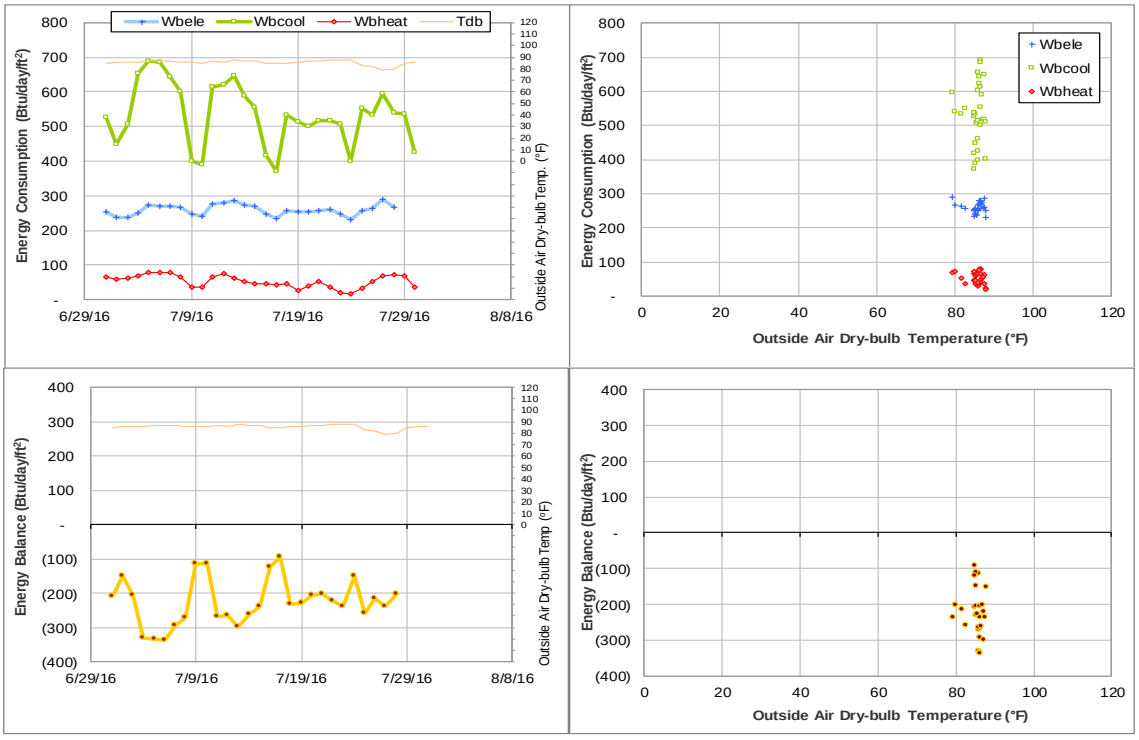


Figure IV-16 Kyle Field TAMU BLDG # 367 Energy Balance Plot during July 2016

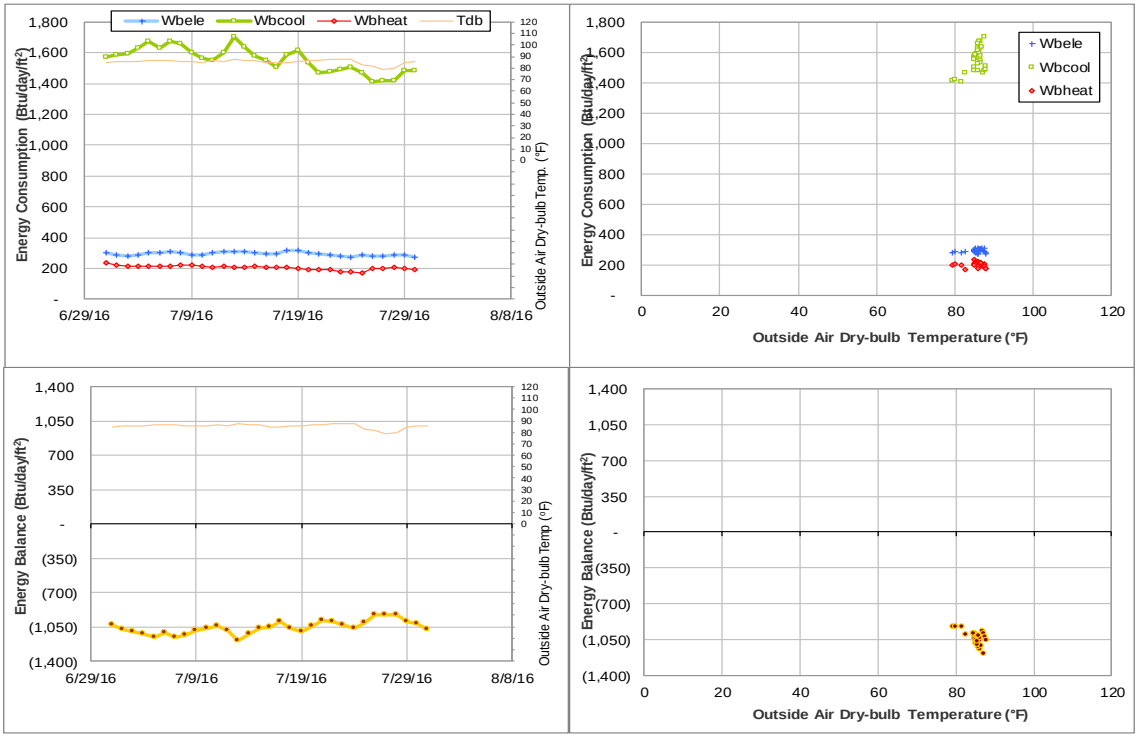


Figure IV-17 Chemistry Building Addition TAMU BLDG # 376 Energy Balance Plot during July 2016

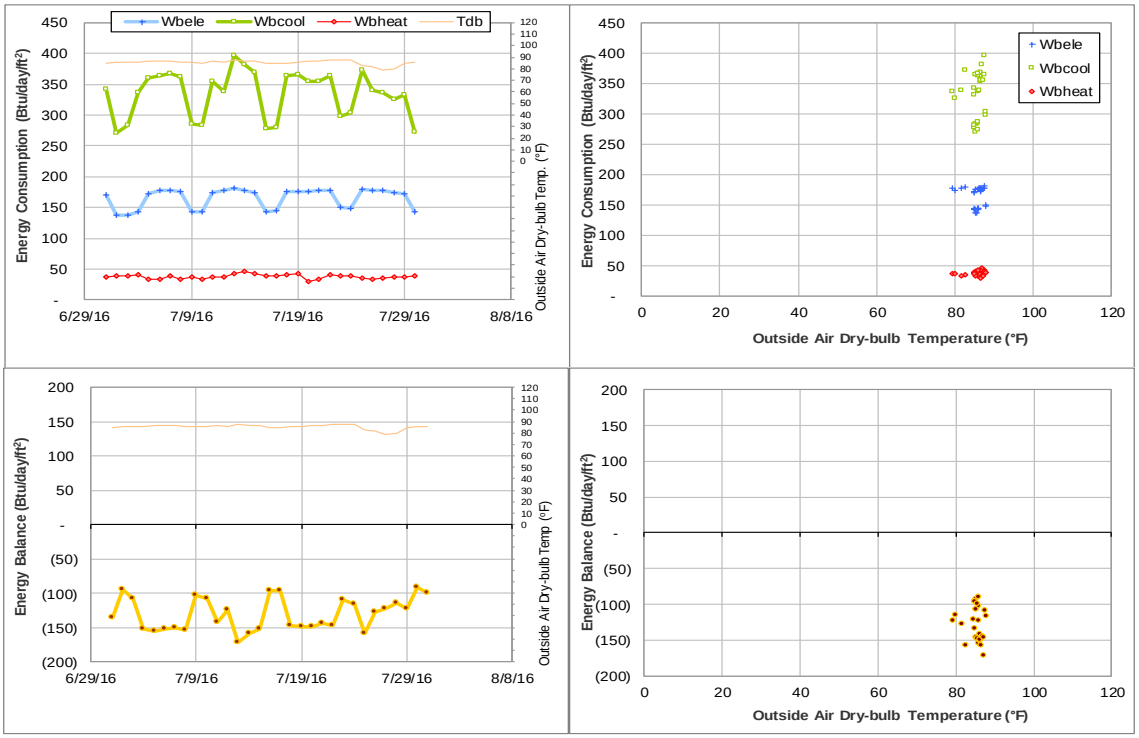


Figure IV-18 Koldus Building TAMU BLDG # 383 Energy Balance Plot during July 2016

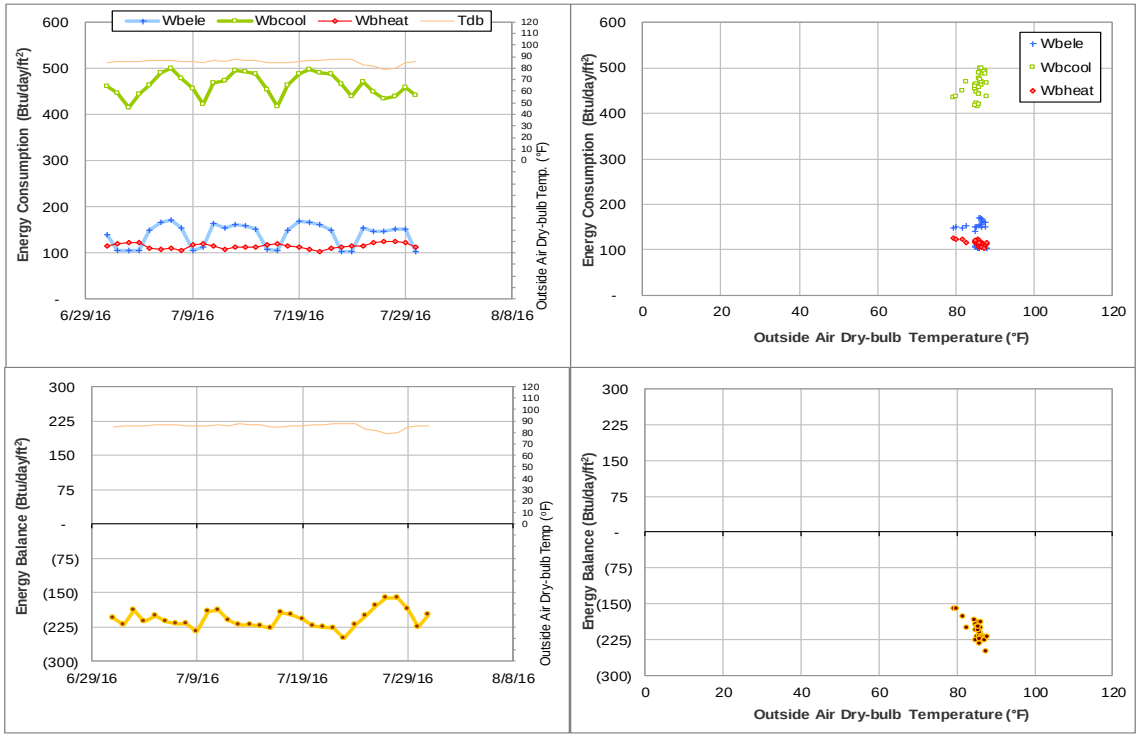


Figure IV-19 Sanders Corps of Cadets Center TAMU BLDG # 384 Energy Balance Plot during July 2016

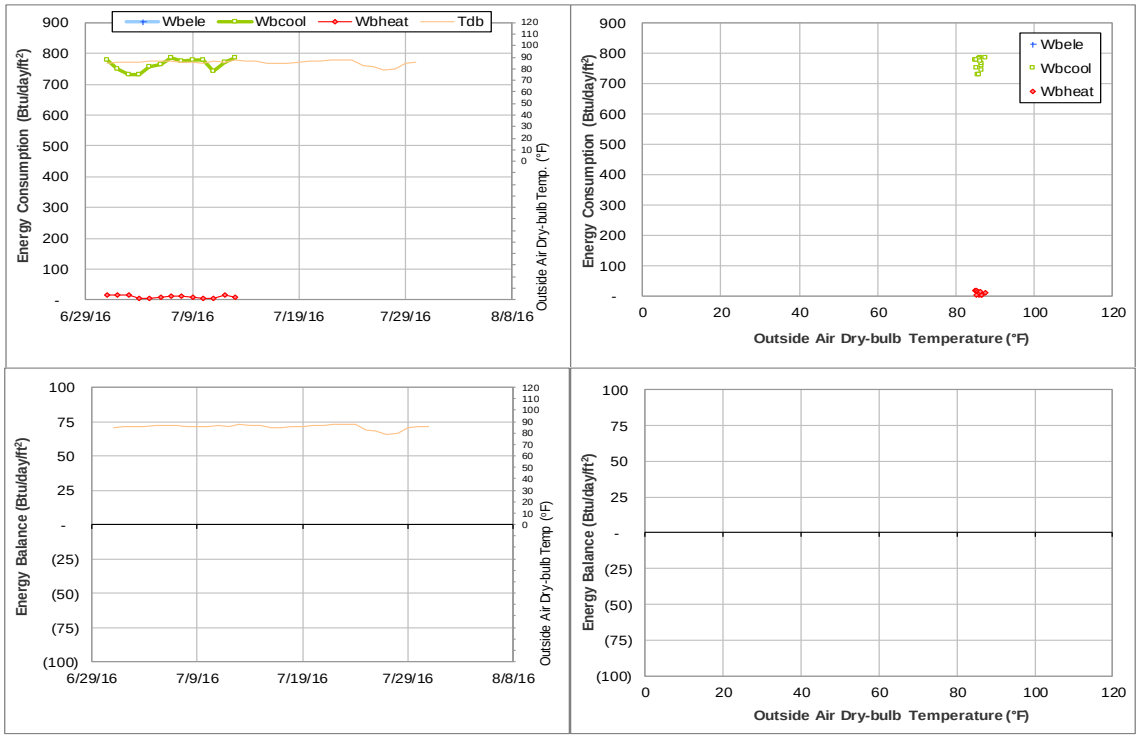


Figure IV-20 CE TTI Office & Lab Building - Pi R Square TAMU BLDG # 385 Energy Balance Plot during July 2016

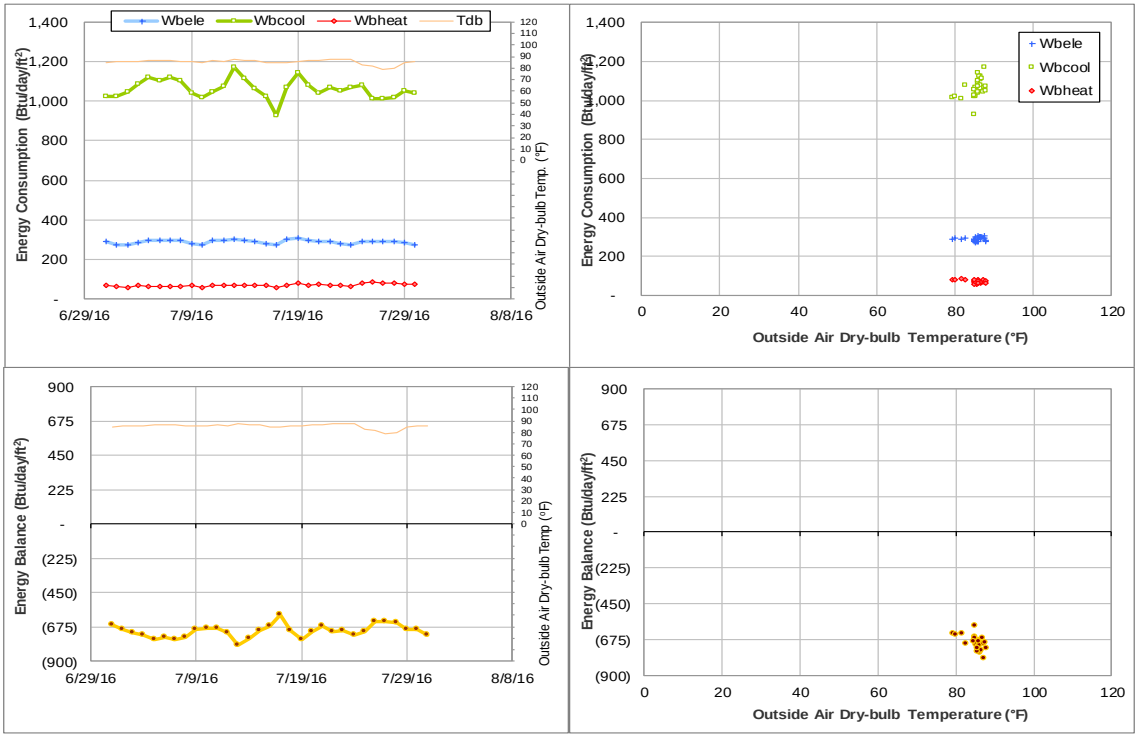


Figure IV-21 Jack E. Brown Chemical Engineering Building TAMU BLDG # 386 Energy Balance Plot during July 2016

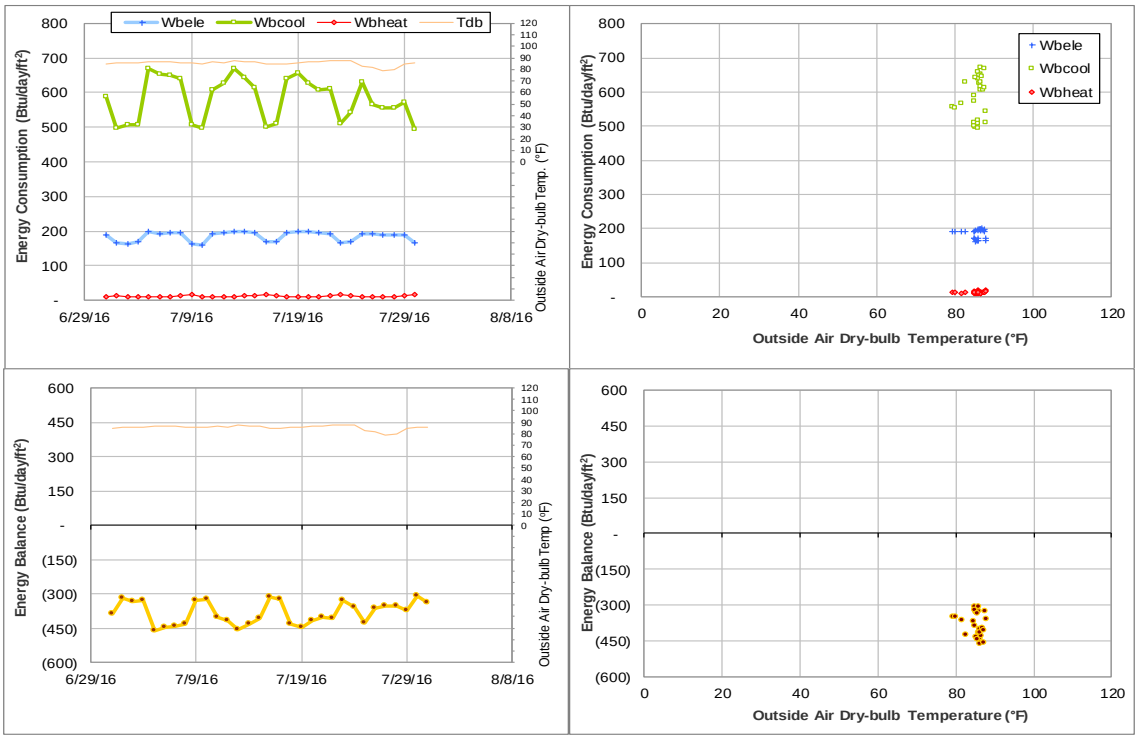


Figure IV-22 Richardson Petroleum Engineering Building TAMU BLDG # 387 Energy Balance Plot during July 2016

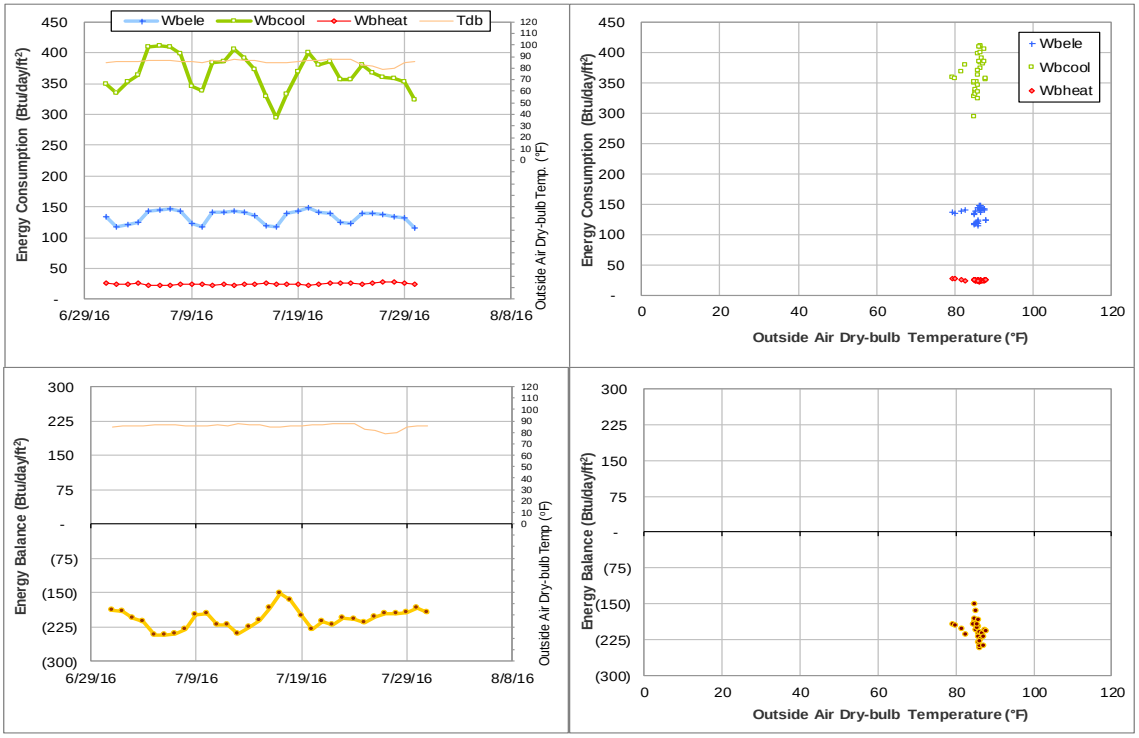


Figure IV-23 James J. Cain'51 and Mechanical Engineering Office Building TAMU BLDG # 391 Energy Balance Plot during July 2016

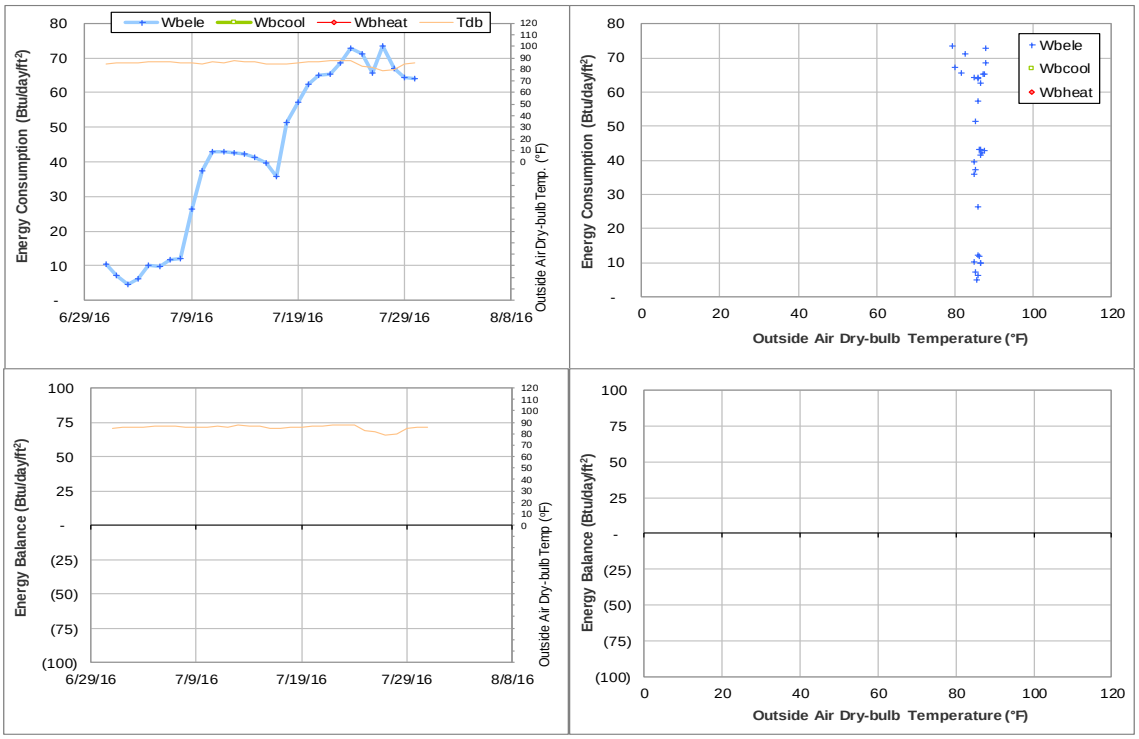


Figure IV-24 Underwood Residence Hall TAMU BLDG # 394 Energy Balance Plot during July 2016

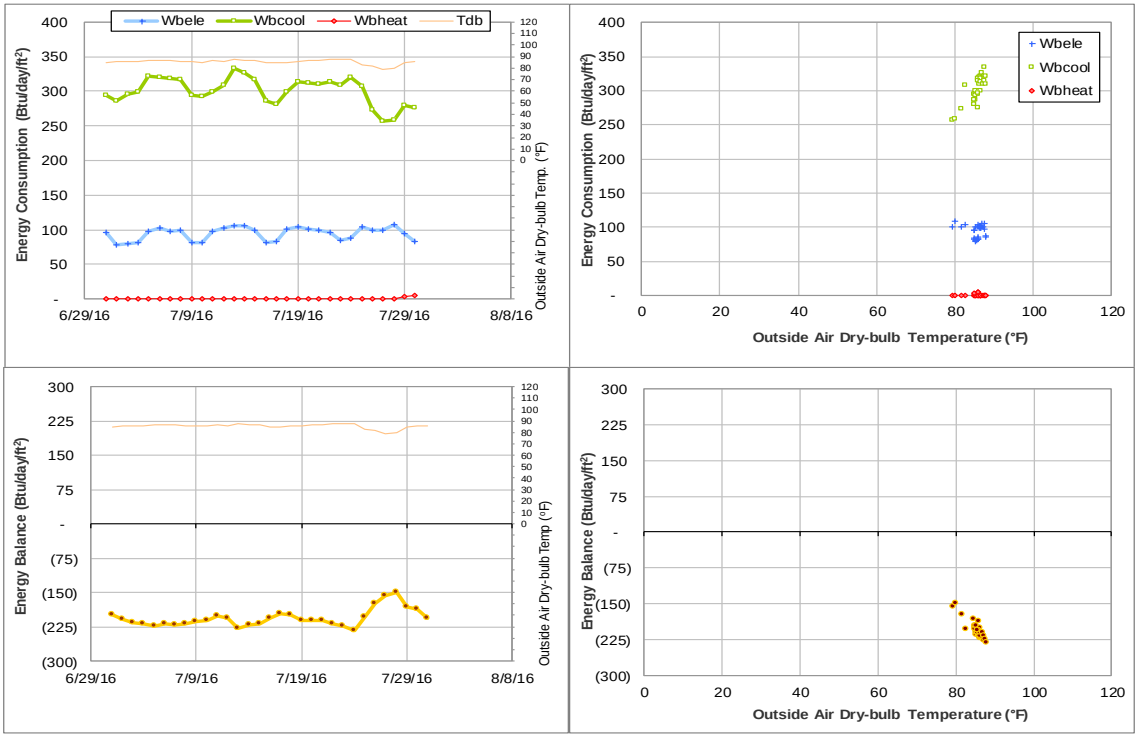


Figure IV-25 Langford Architecture Center Building A TAMU BLDG # 398 Energy Balance Plot during July 2016

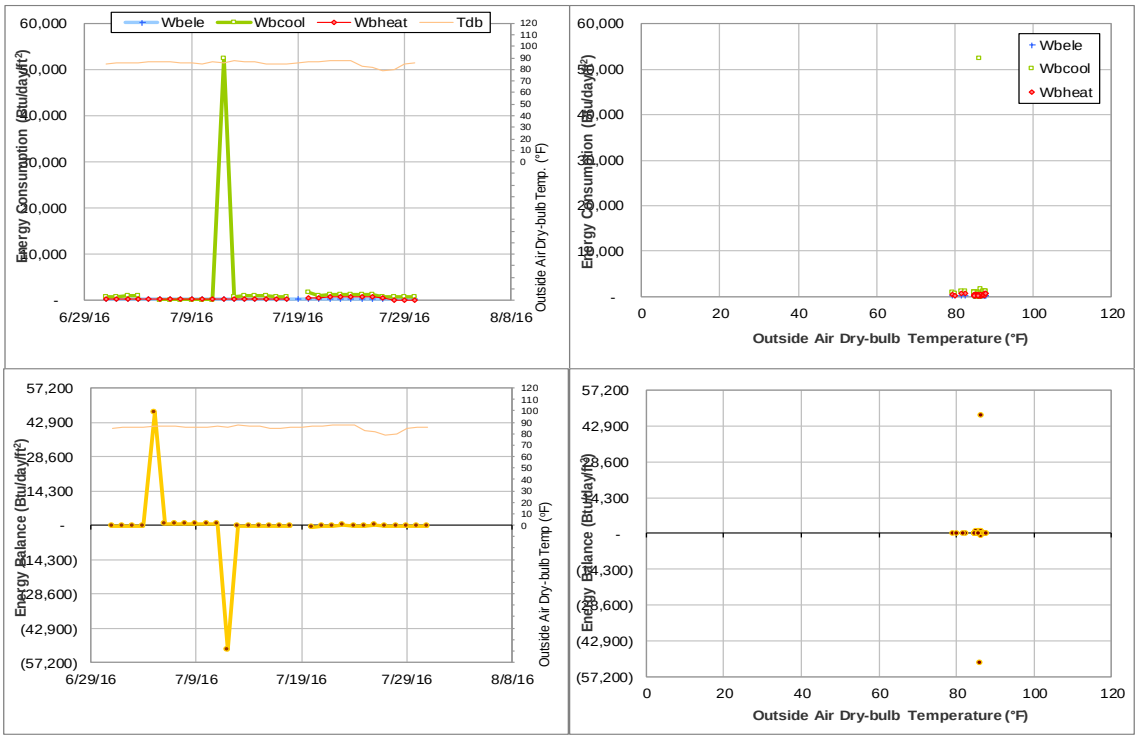


Figure IV-26 Spence Hall Dorm 1 TAMU BLDG # 400 Energy Balance Plot during July 2016

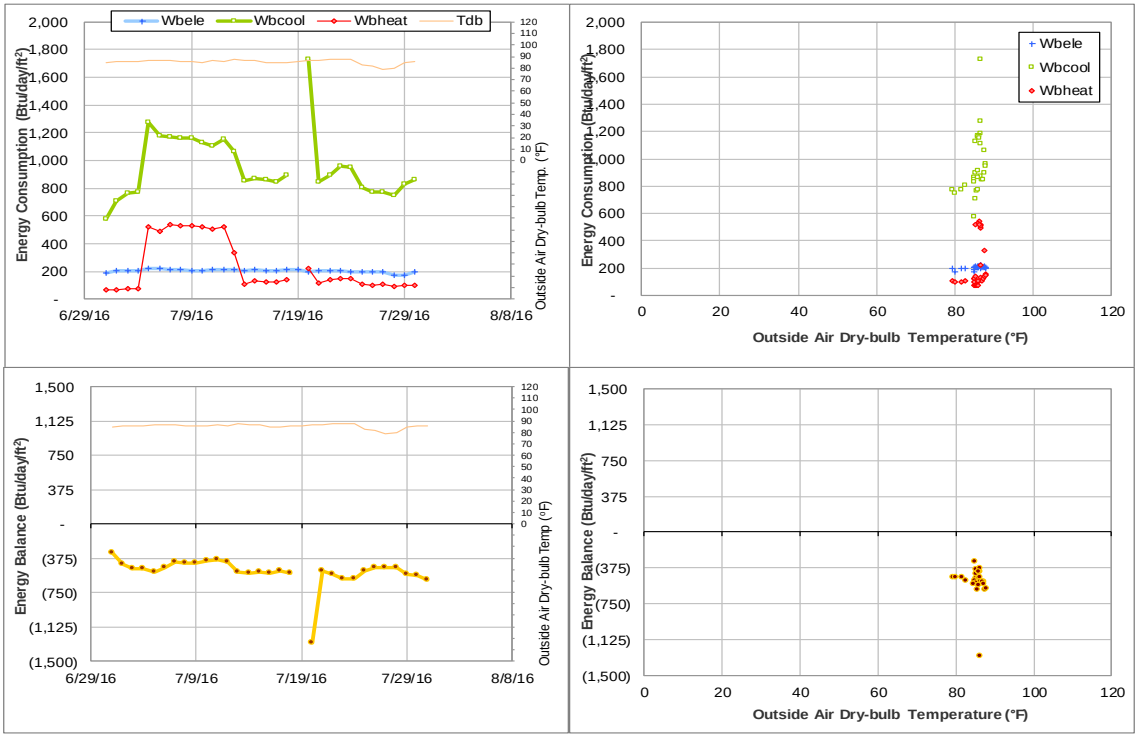


Figure IV-27 Kiest Hall Dorm 2 TAMU BLDG # 401 Energy Balance Plot during July 2016

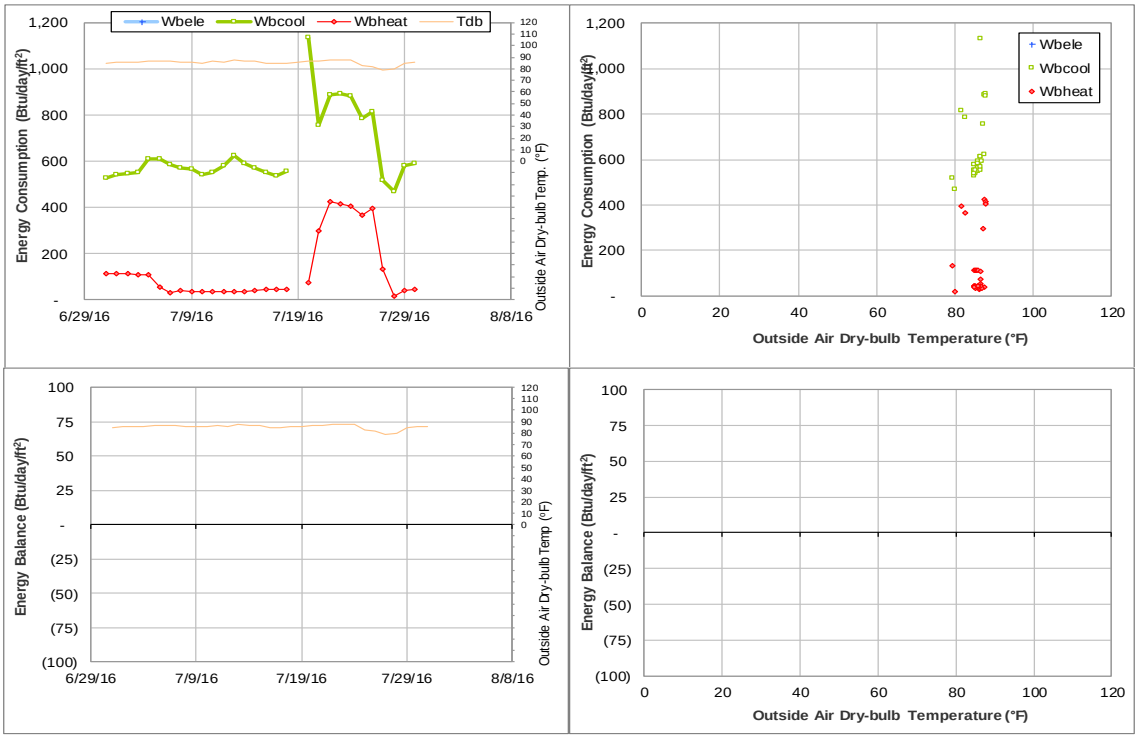


Figure IV-28 Briggs Hall Dorm 3 TAMU BLDG # 402 Energy Balance Plot during July 2016

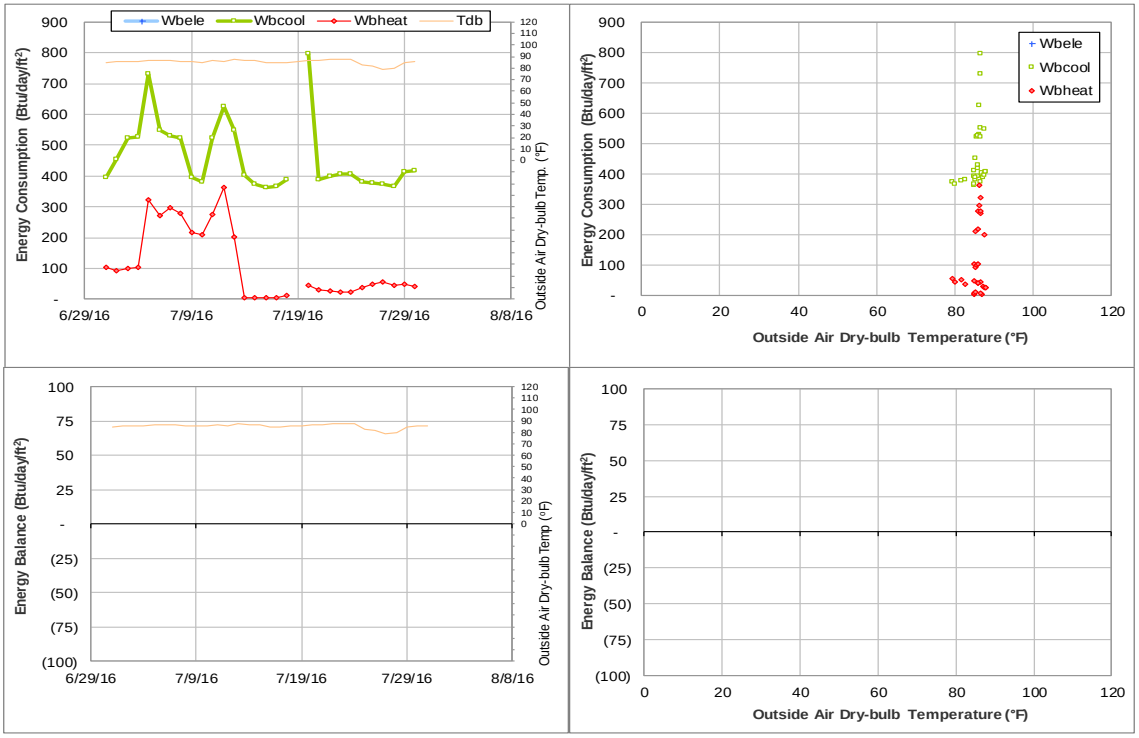


Figure IV-29 Fountain Hall Dorm 4 TAMU BLDG # 403 Energy Balance Plot during July 2016

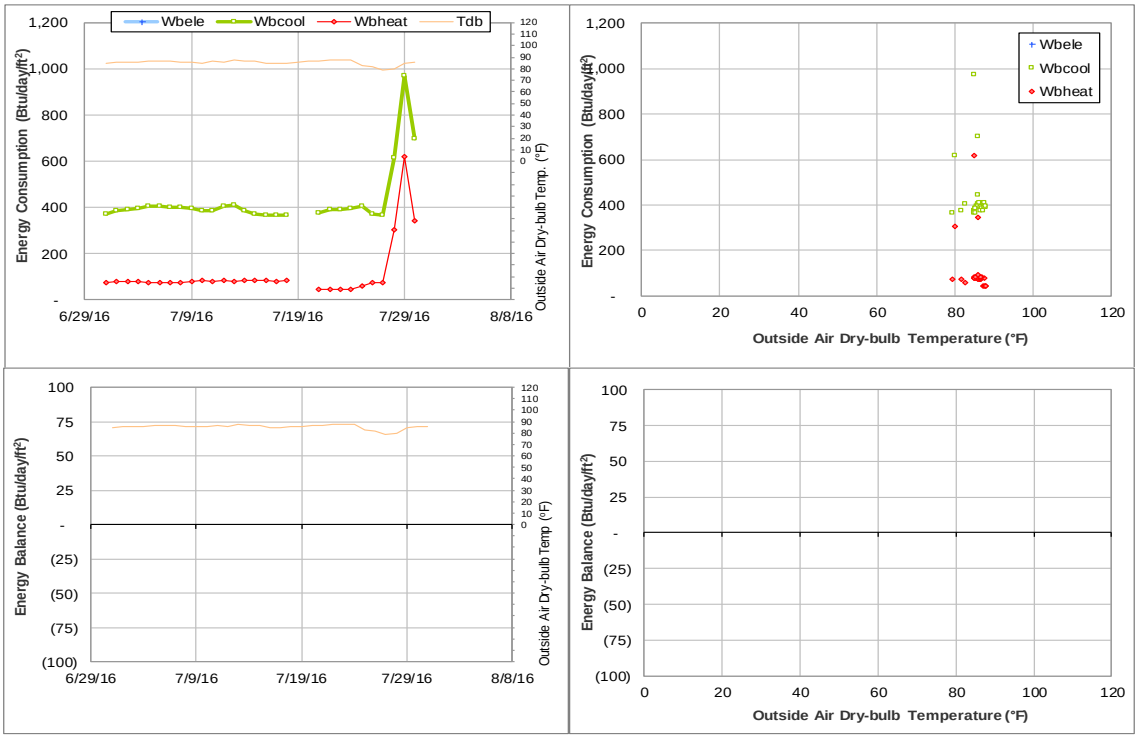


Figure IV-30 Gainer Hall Dorm 5 TAMU BLDG # 404 Energy Balance Plot during July 2016

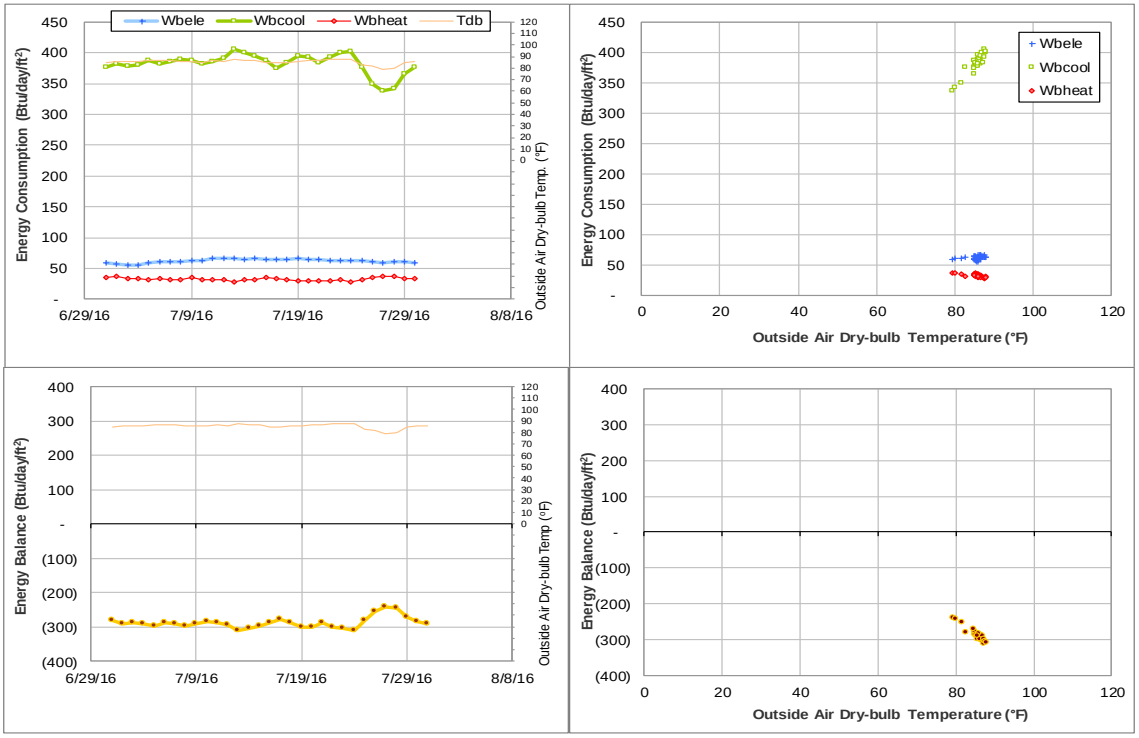


Figure IV-31 Lacy Hall - Dorm 6, Harrell Hall and Leadership Learning Center TAMU BLDG # 405, 407, and 1402 Energy Balance Plot during July 2016

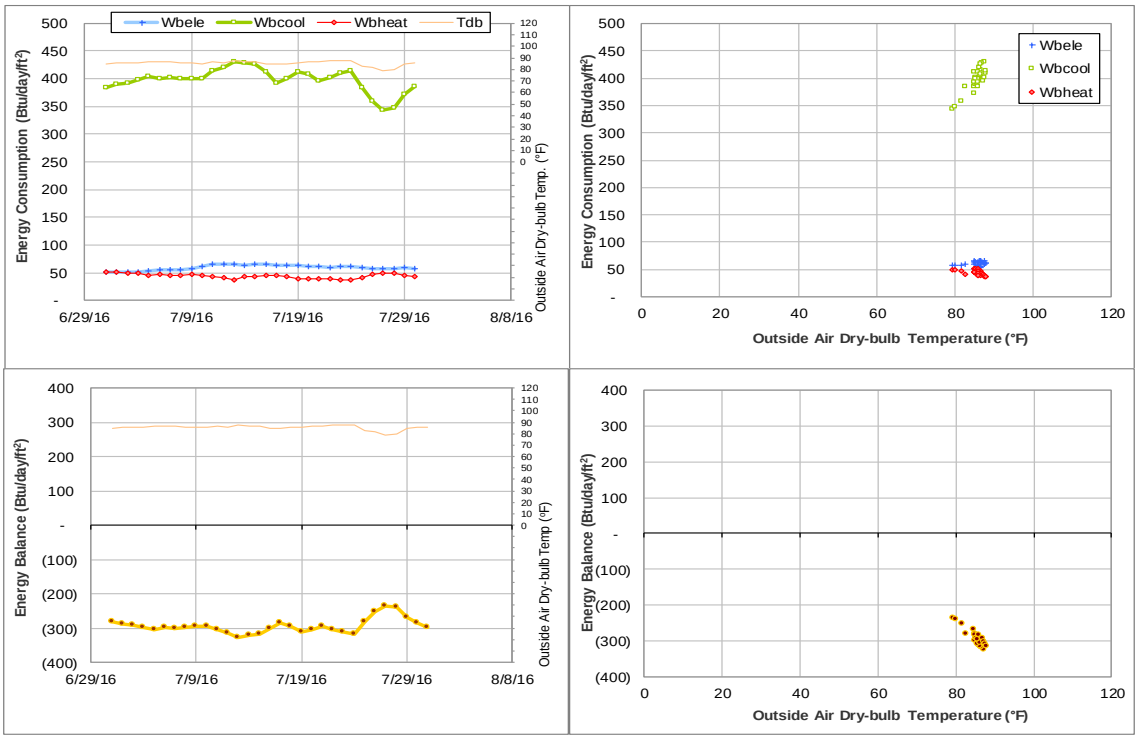


Figure IV-32 Lacy Hall - Dorm 6 TAMU BLDG # 405 Energy Balance Plot during July 2016

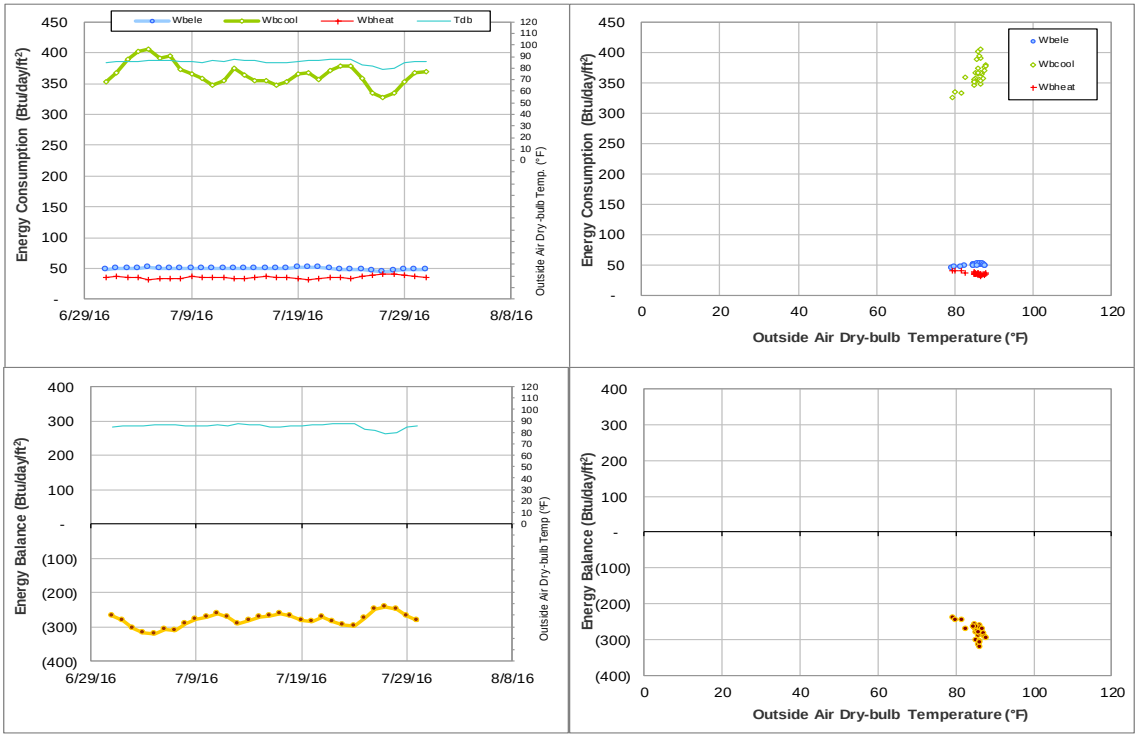


Figure IV-33 Harrell Hall - Dorm 8 TAMU BLDG # 407 Energy Balance Plot during July 2016

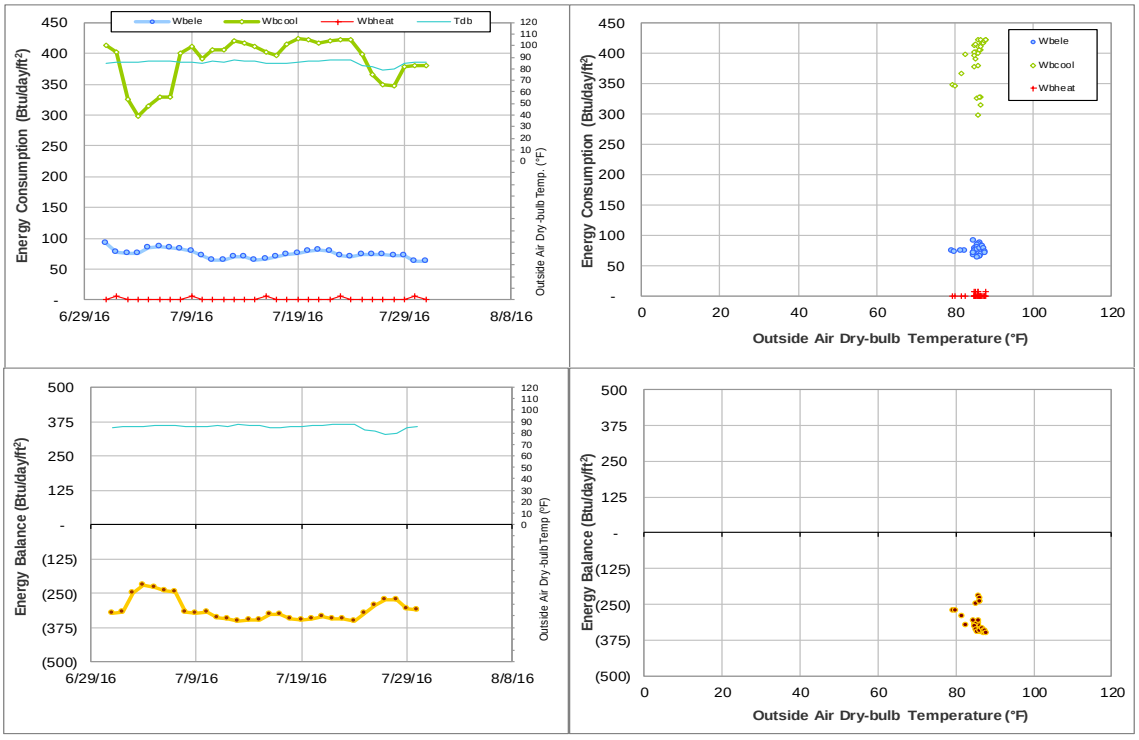


Figure IV-34 Buzbee Leadership Learning Center TAMU BLDG # 1402 Energy Balance Plot during July 2016

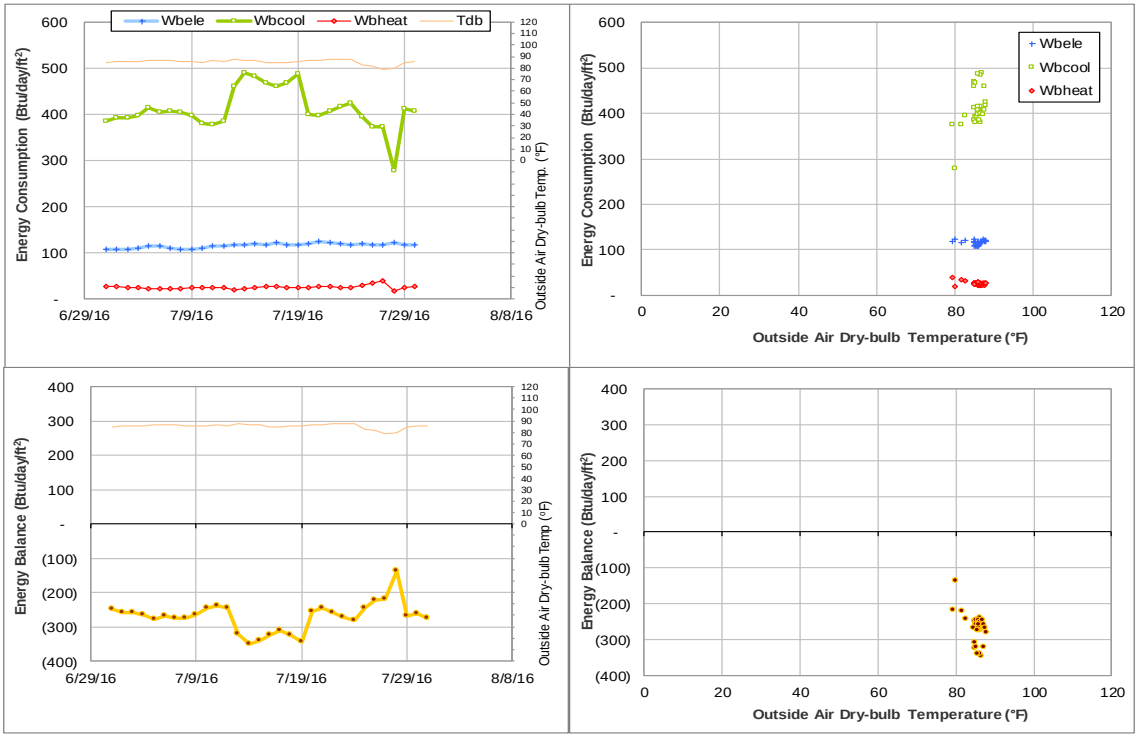


Figure IV-35 Leonard Hall - Dorm 7 and Ash LLC TAMU BLDG # 406 and 1403 Energy Balance Plot during July 2016

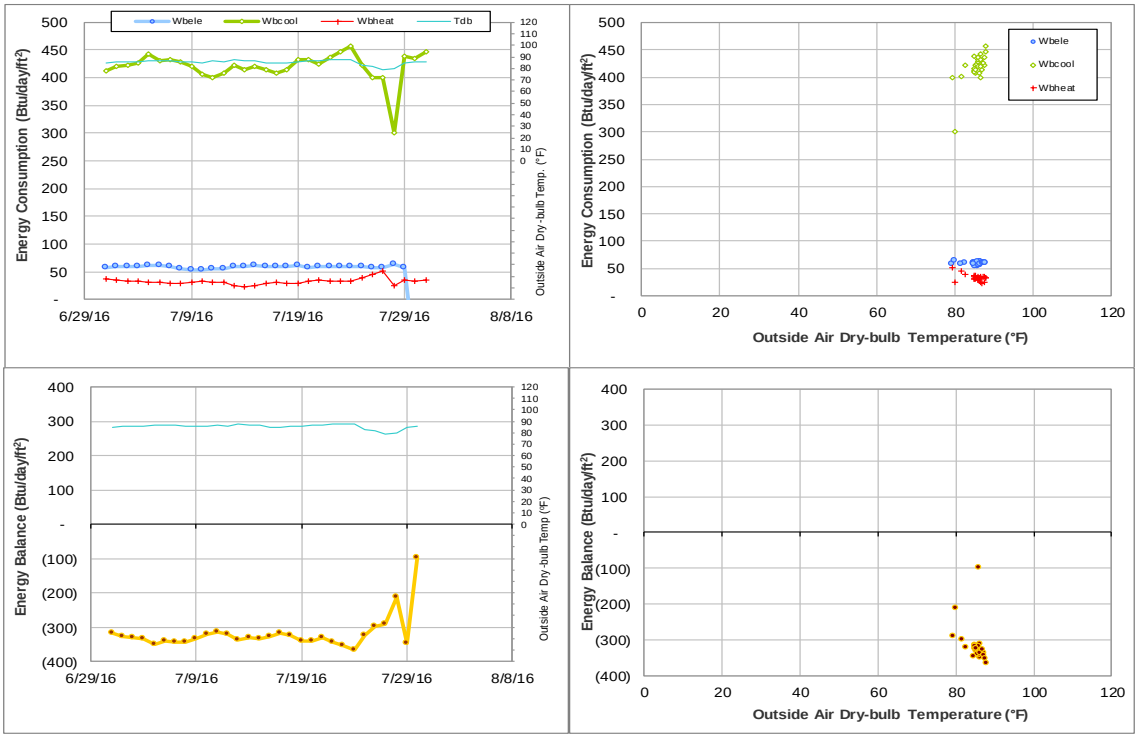


Figure IV-36 Leonard Hall - Dorm 7 TAMU BLDG # 406 Energy Balance Plot during July 2016

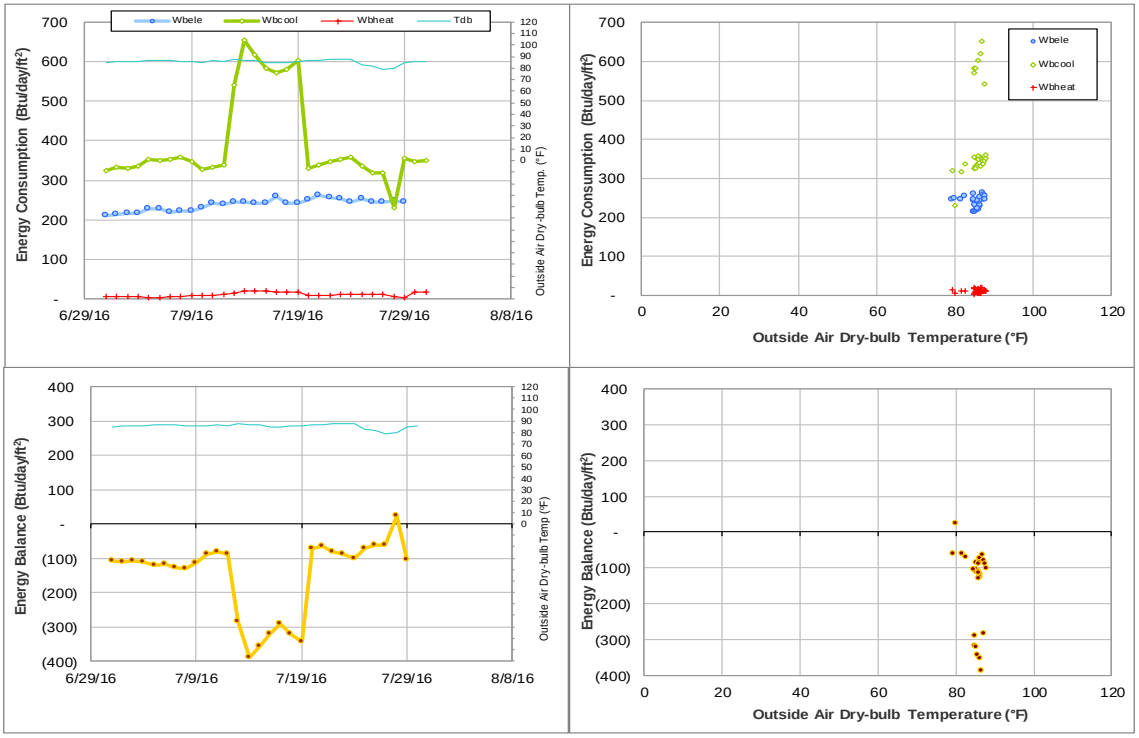


Figure IV-37 H. Grady Ash, Jr. '58 Leadership Learning Center TAMU BLDG # 1403 Energy Balance Plot during July 2016

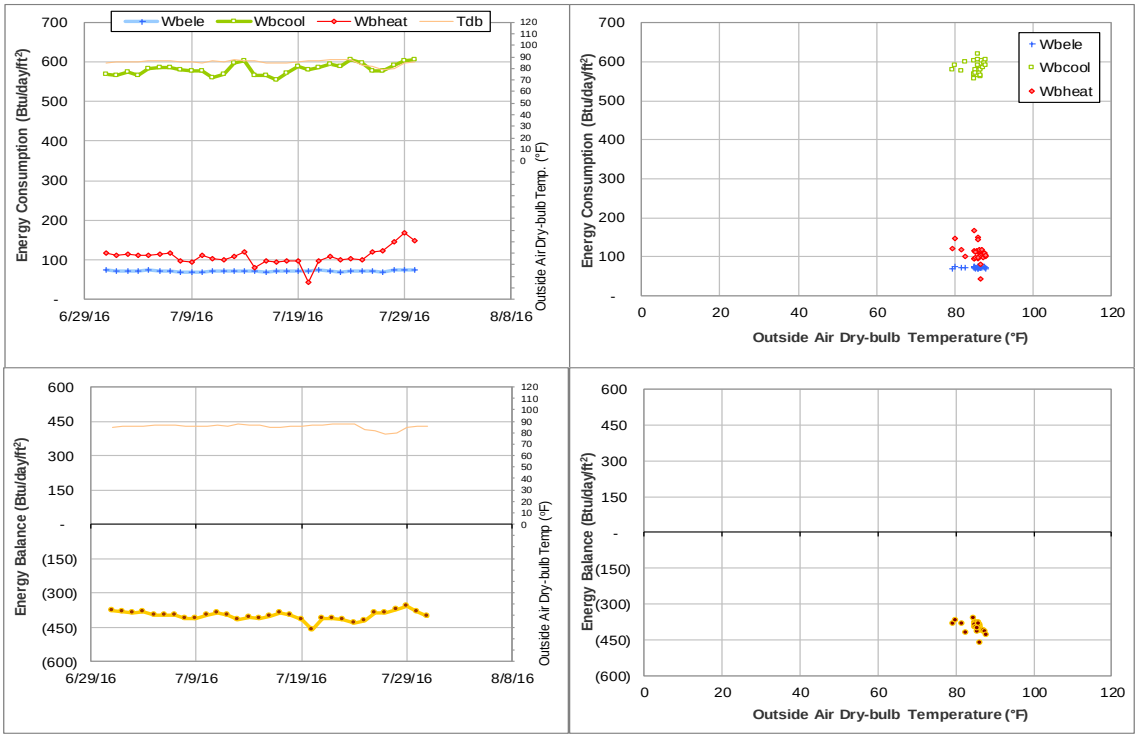


Figure IV-38 Moses Residence Hall TAMU BLDG # 412 Energy Balance Plot during July 2016

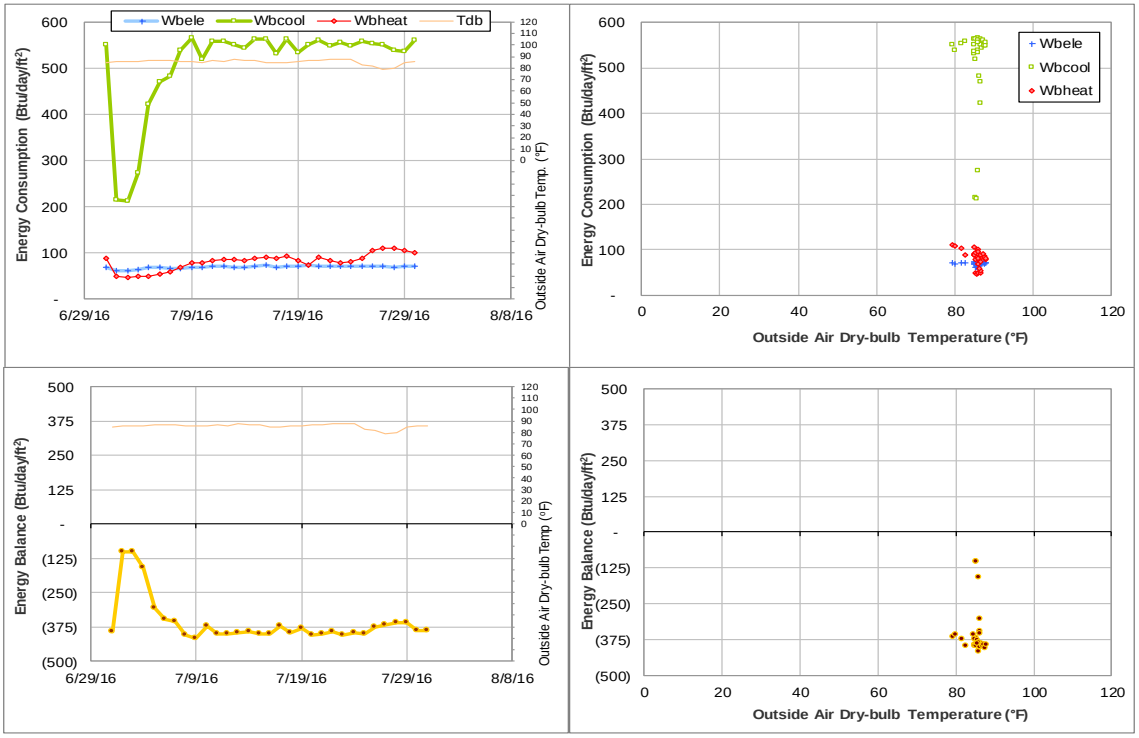


Figure IV-39 Davis-Gary Residence Hall TAMU BLDG # 415 Energy Balance Plot during July 2016

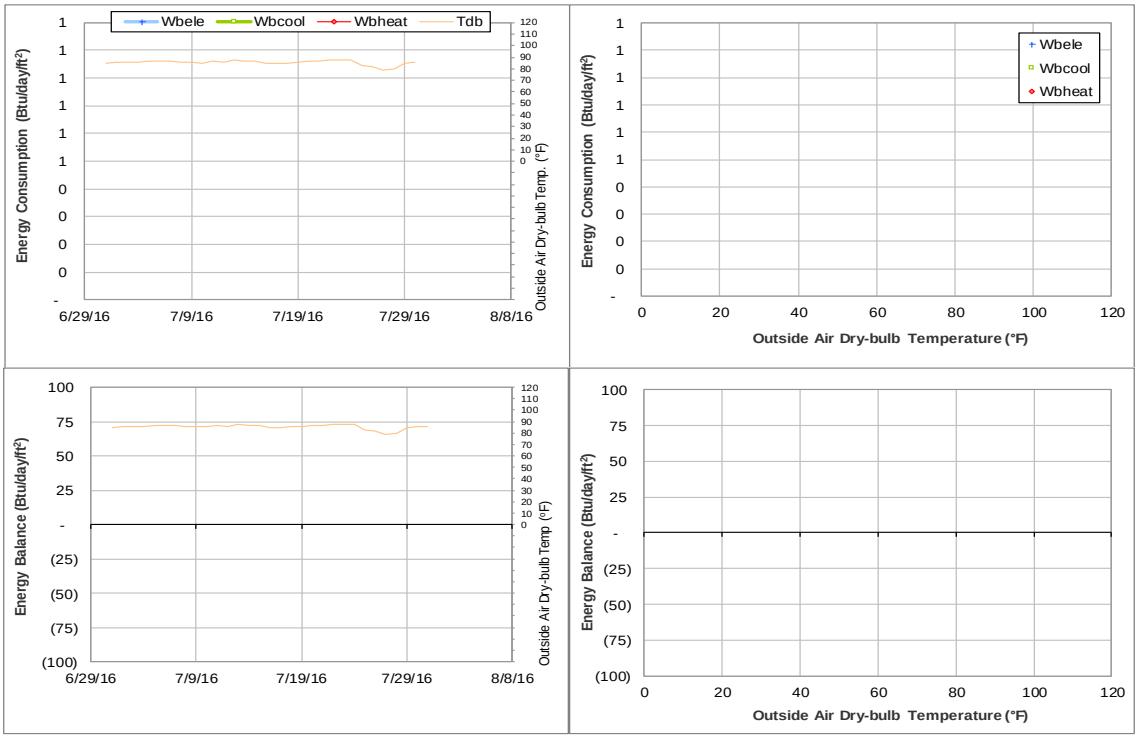


Figure IV-40 Legett Residence Hall TAMU BLDG # 419 Energy Balance Plot during July 2016

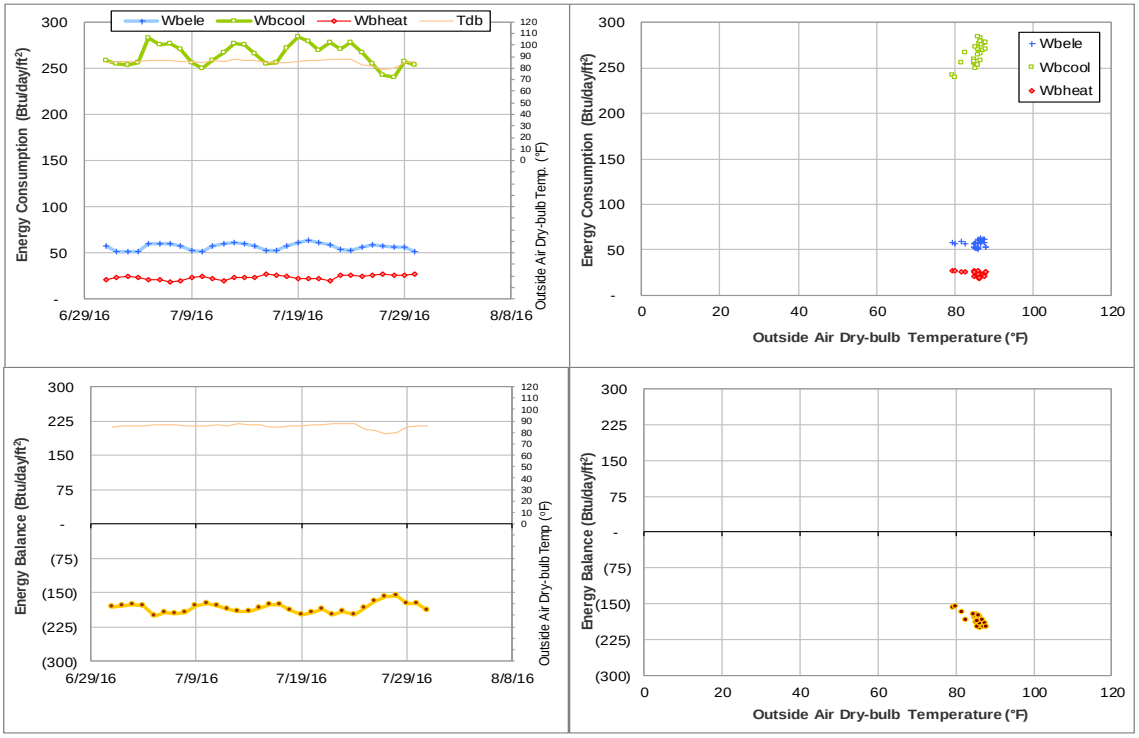


Figure IV-41 Milner Hall TAMU BLDG # 420 Energy Balance Plot during July 2016

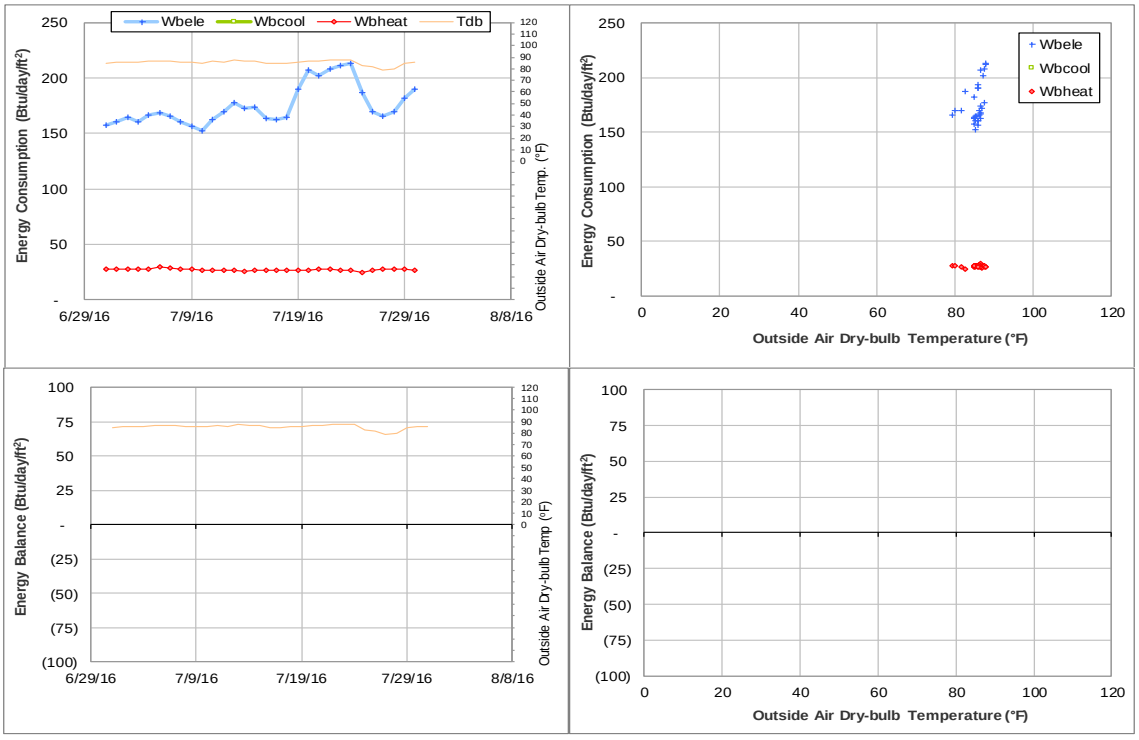


Figure IV-42 Walton Residence Hall TAMU BLDG # 422 Energy Balance Plot during July 2016

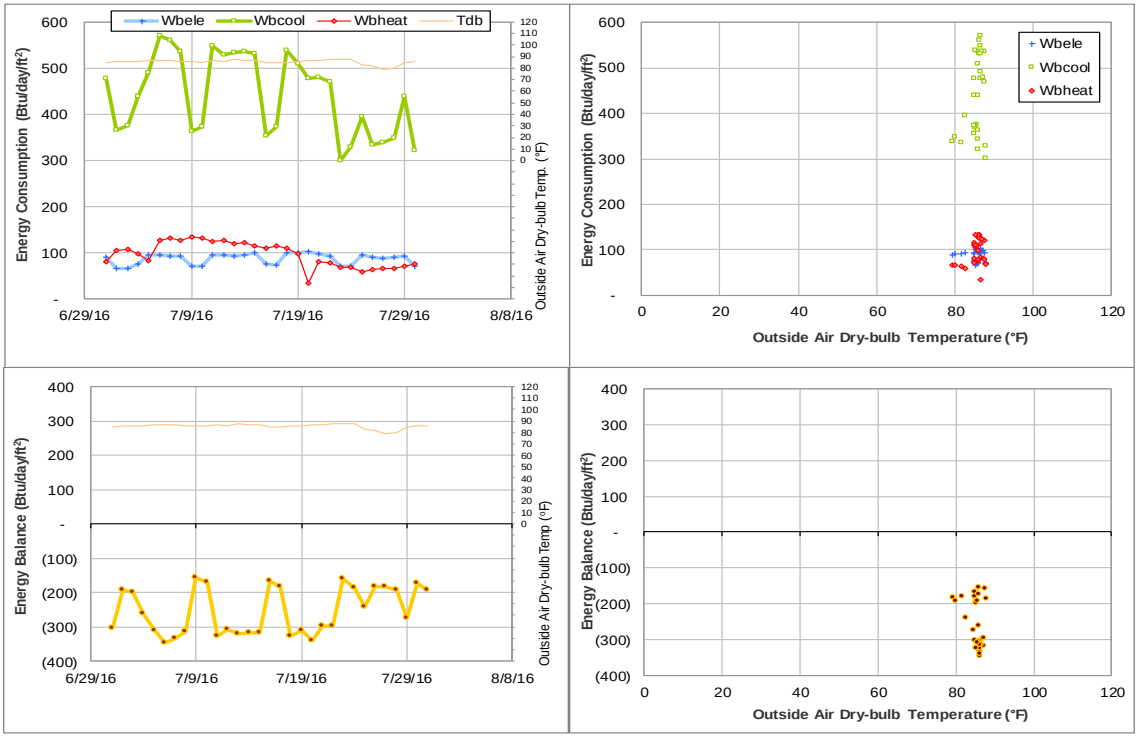


Figure IV-43 Hotard Hall TAMU BLDG # 424 Energy Balance Plot during July 2016

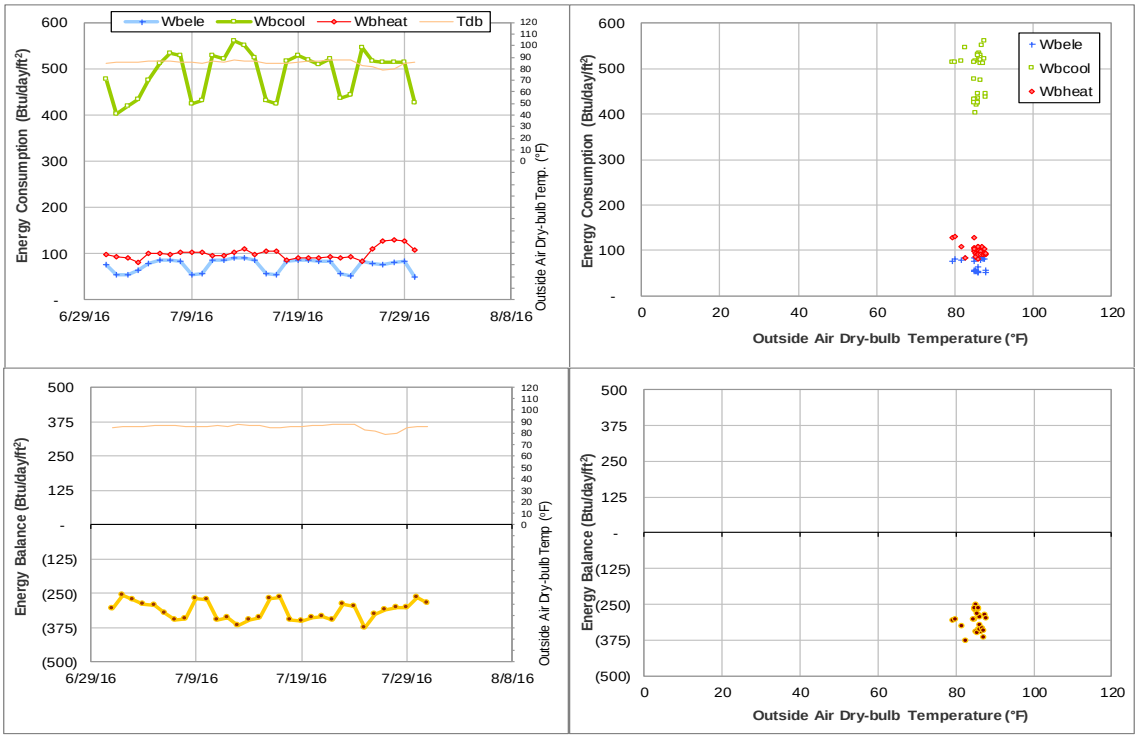


Figure IV-44 Henderson Hall TAMU BLDG # 425 Energy Balance Plot during July 2016

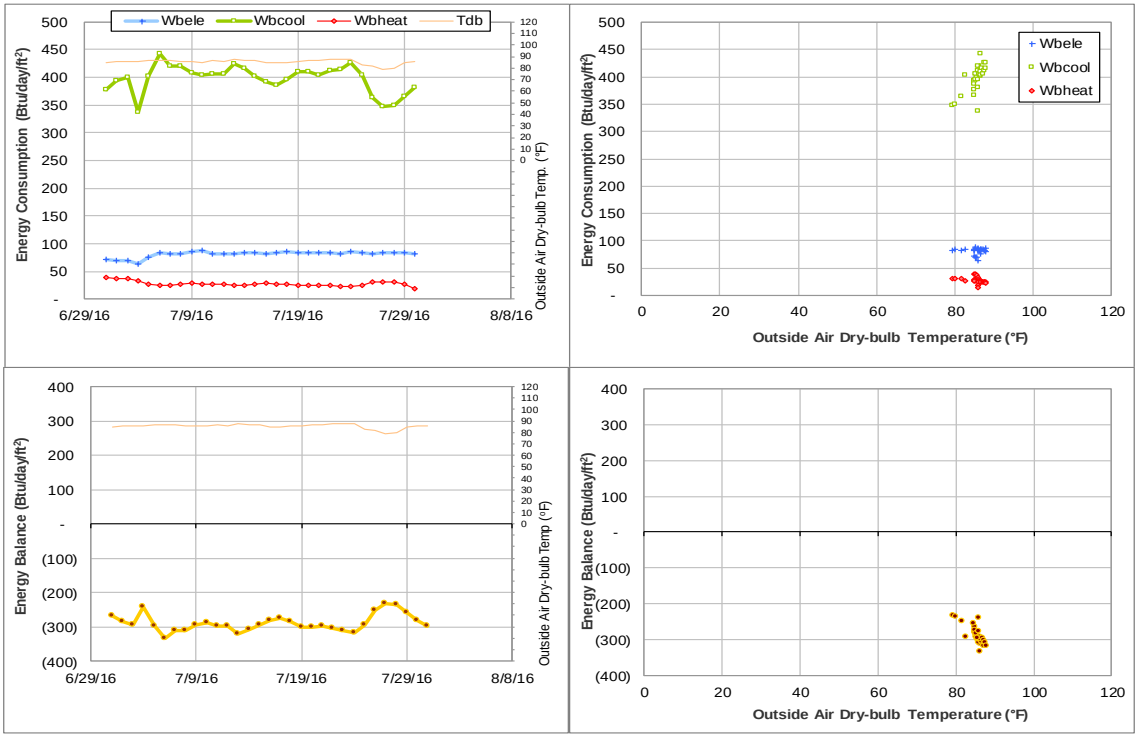


Figure IV-45 FHK Complex TAMU BLDG # 426 Energy Balance Plot during July 2016

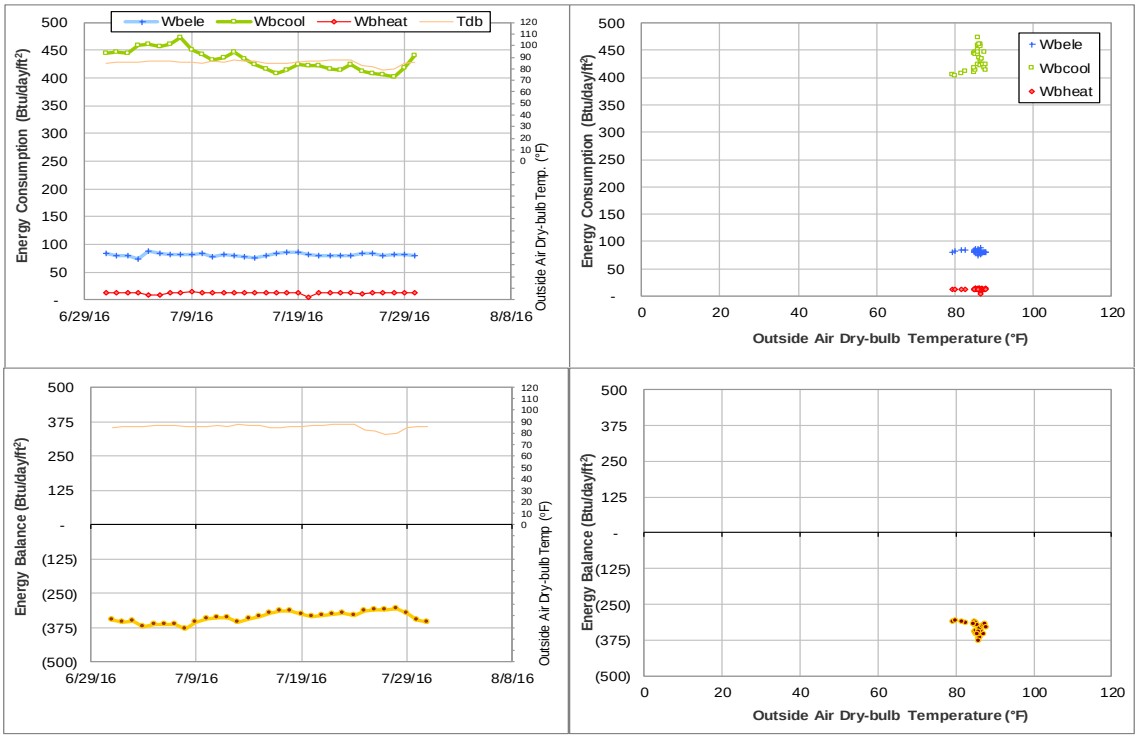


Figure IV-46 Schumacher Residence Hall TAMU BLDG # 430 Energy Balance Plot during July 2016

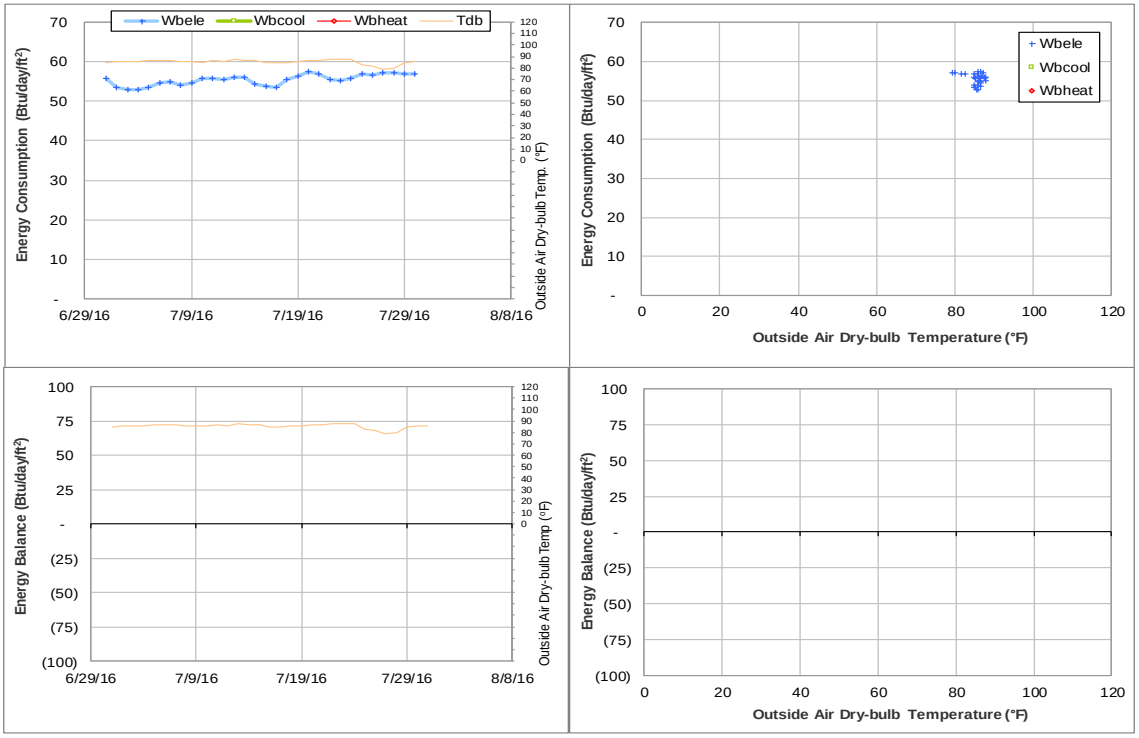


Figure IV-47 Mosher Commons Krueger Dunn Aston TAMU BLDG # 433, 440, 441, 442 and 447 Energy Balance Plot during July 2016

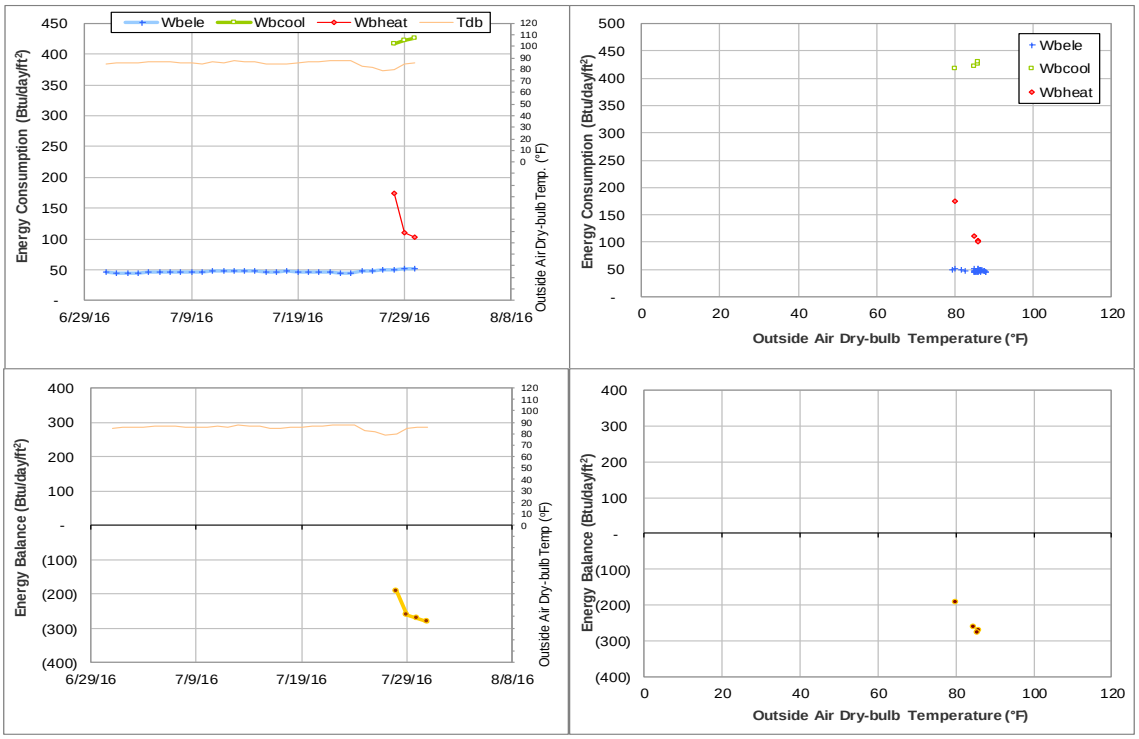


Figure IV-48 Mosher Residence Hall TAMU BLDG # 433 Energy Balance Plot during July 2016

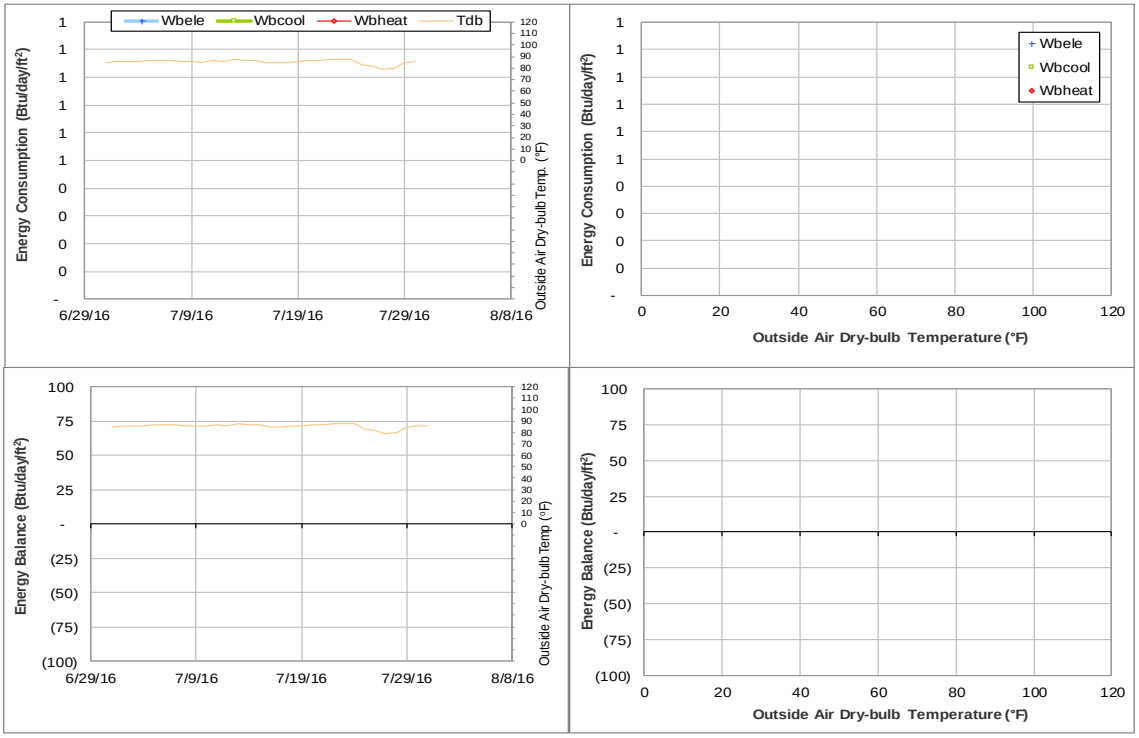


Figure IV-49 Commons Hall TAMU BLDG # 440 Energy Balance Plot during July 2016

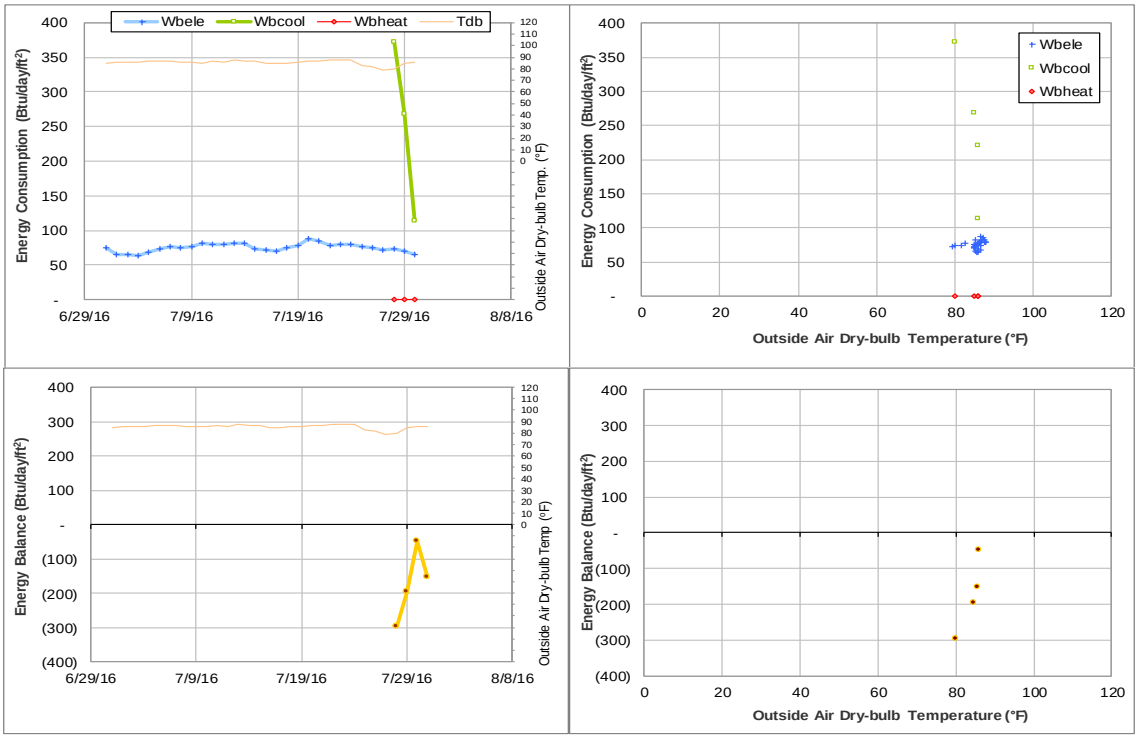


Figure IV-50 Krueger Residence Hall TAMU BLDG # 441 Energy Balance Plot during July 2016

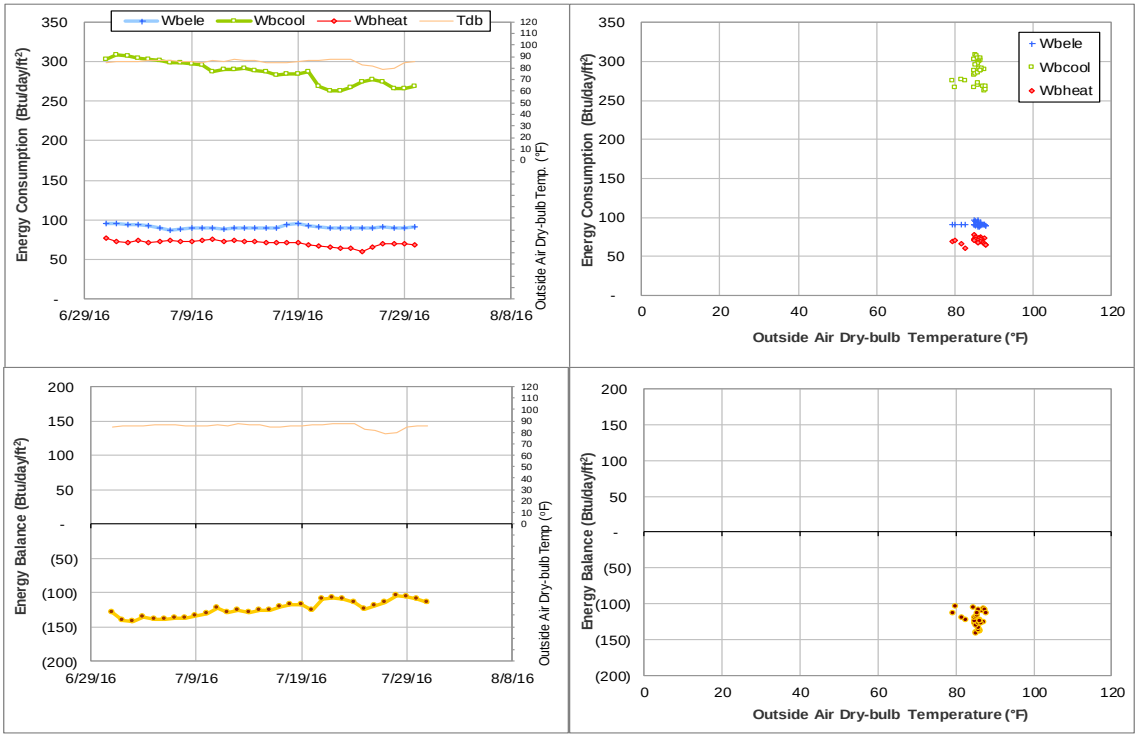


Figure IV-51 Dunn Residence Hall TAMU BLDG # 442 Energy Balance Plot during July 2016

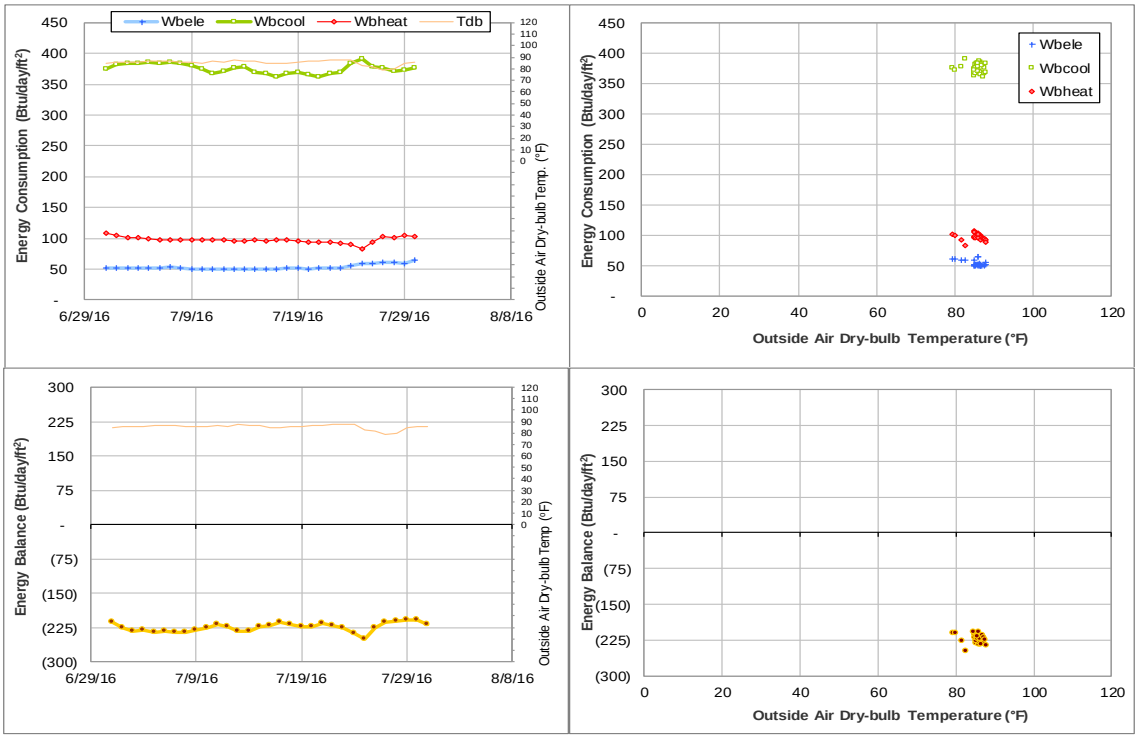


Figure IV-52 Aston Residence Hall TAMU BLDG # 447 Energy Balance Plot during July 2016

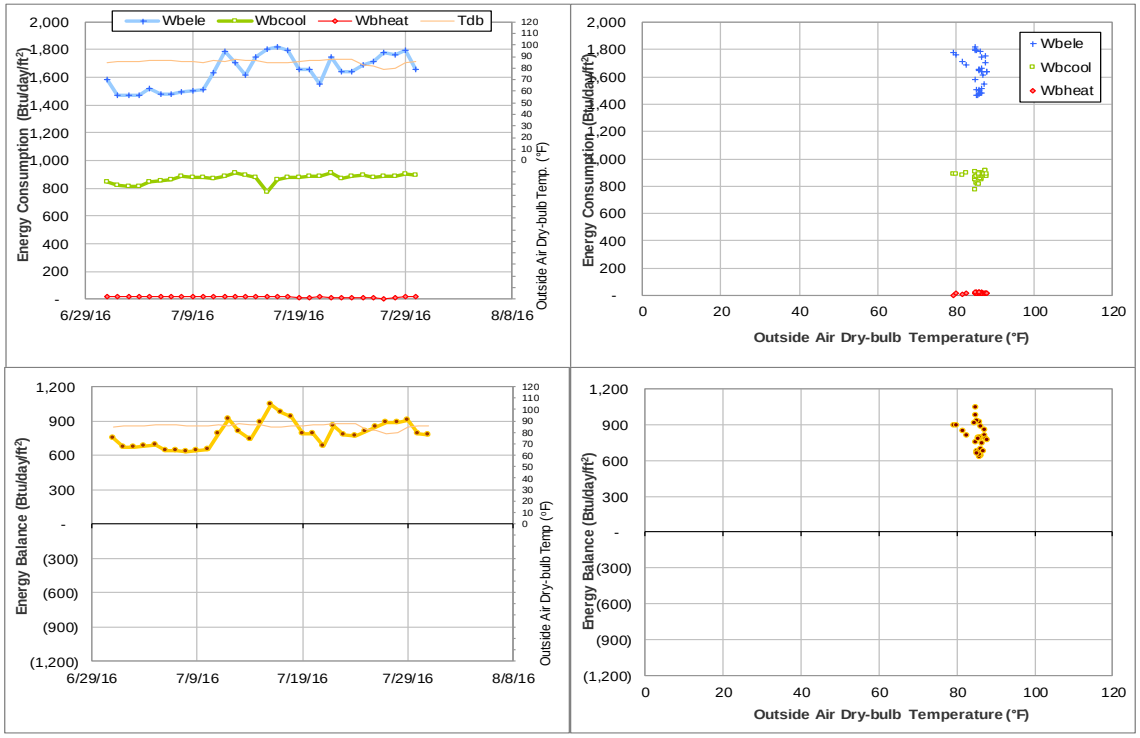


Figure IV-53 Luedecke Building (Cyclotron) TAMU BLDG # 434 Energy Balance Plot during July 2016

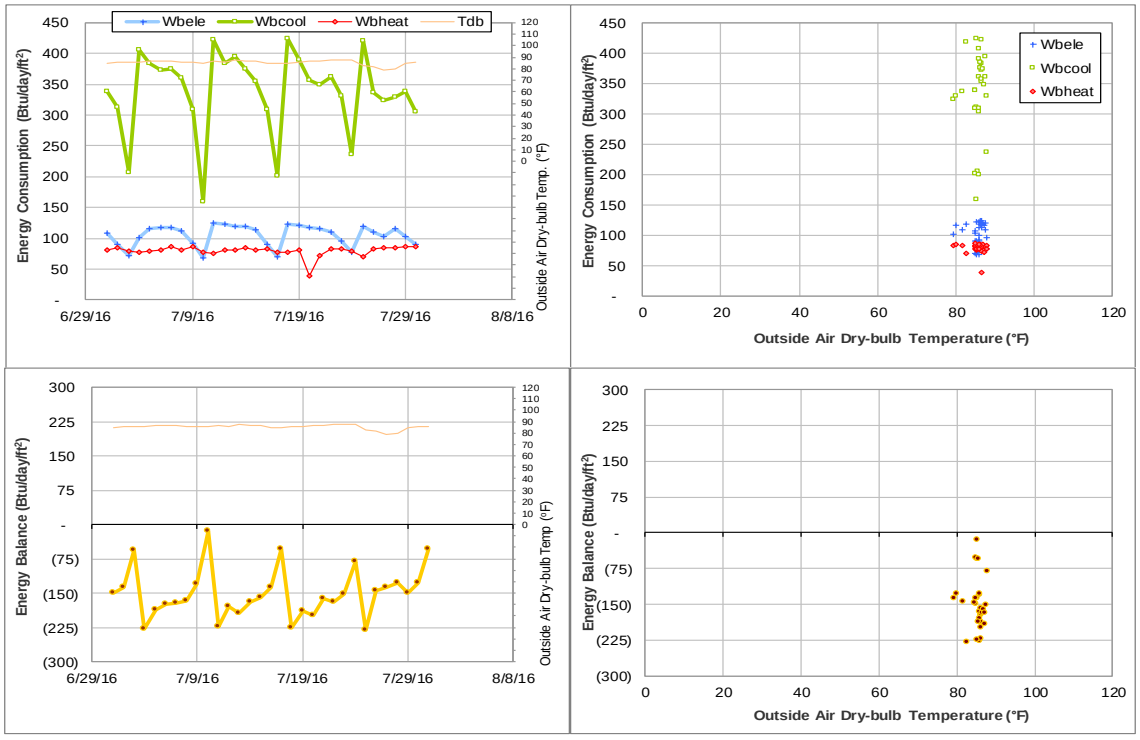


Figure IV-54 Harrington Education Center Office Tower TAMU BLDG # 435 Energy Balance Plot during July 2016

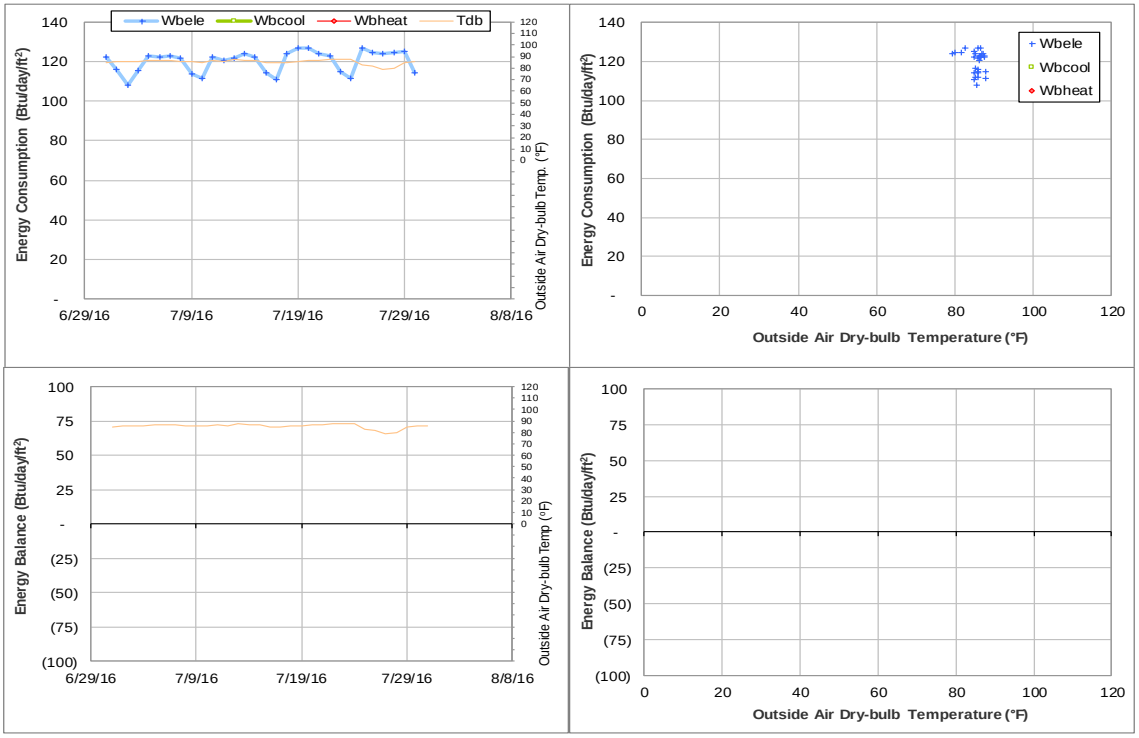


Figure IV-55 Reed-McDonald and Engineering Innovation Center TAMU BLDG # 436 and 499 Energy Balance Plot during July 2016

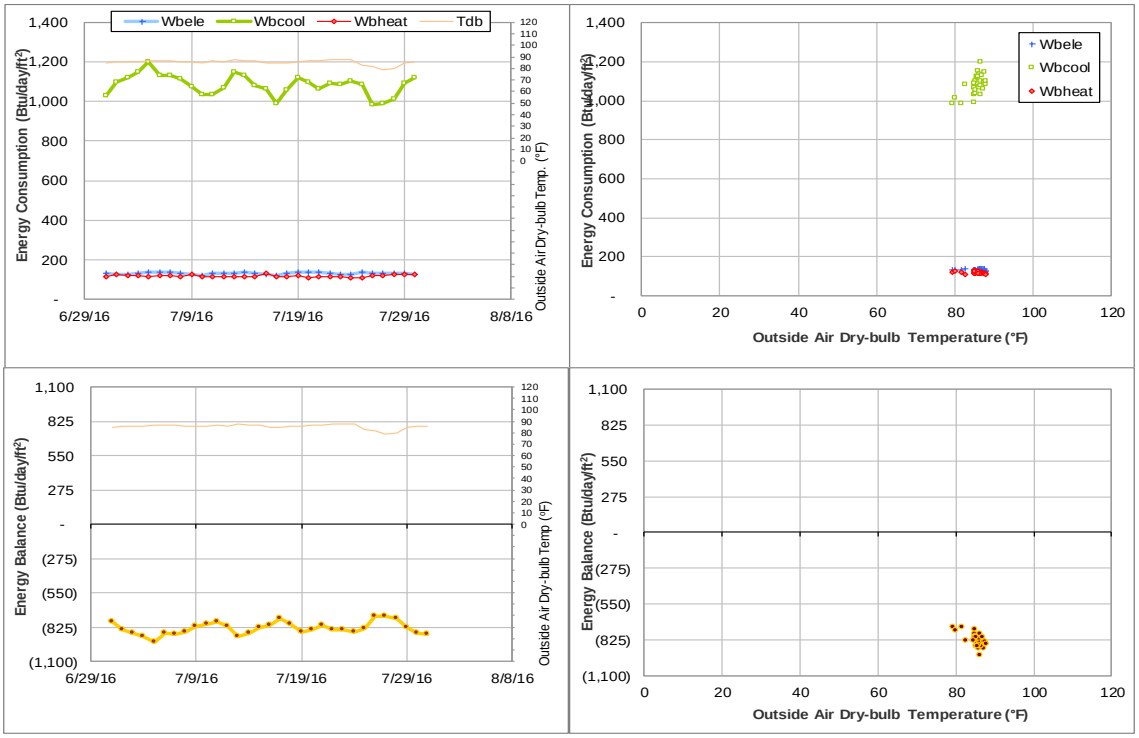


Figure IV-56 Reed-McDonald Building TAMU BLDG # 436 Energy Balance Plot during July 2016

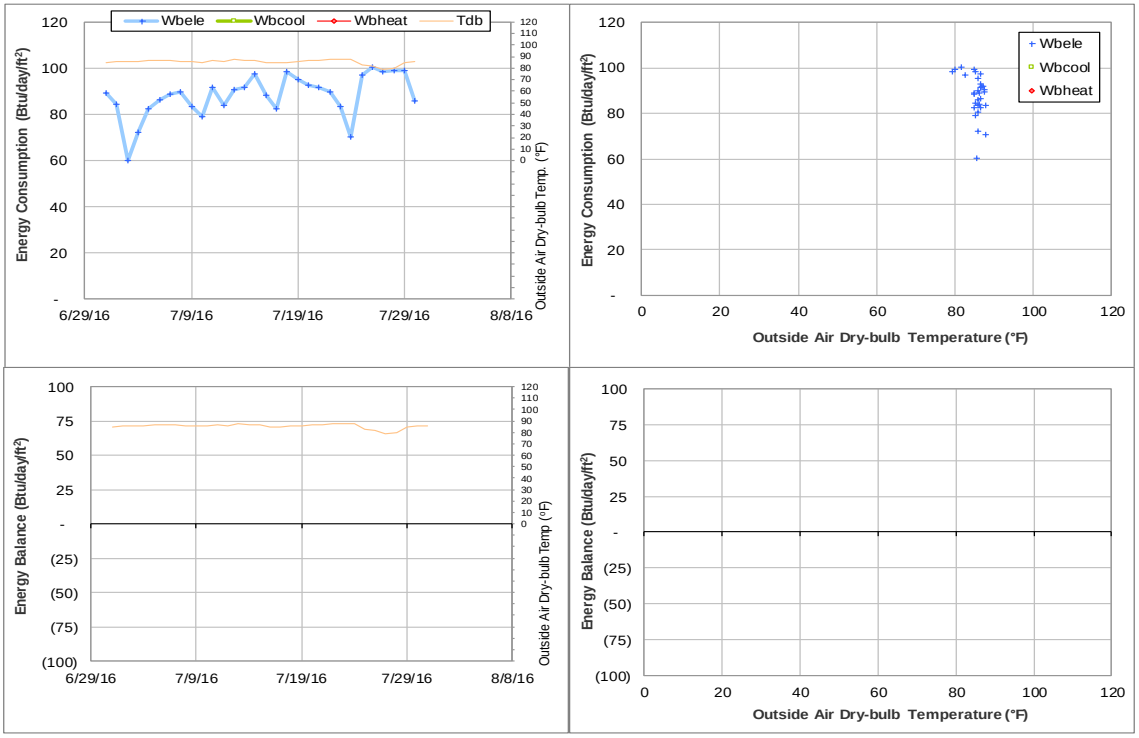


Figure IV-57 Engineering Innovation Center TAMU BLDG # 499 Energy Balance Plot during July 2016

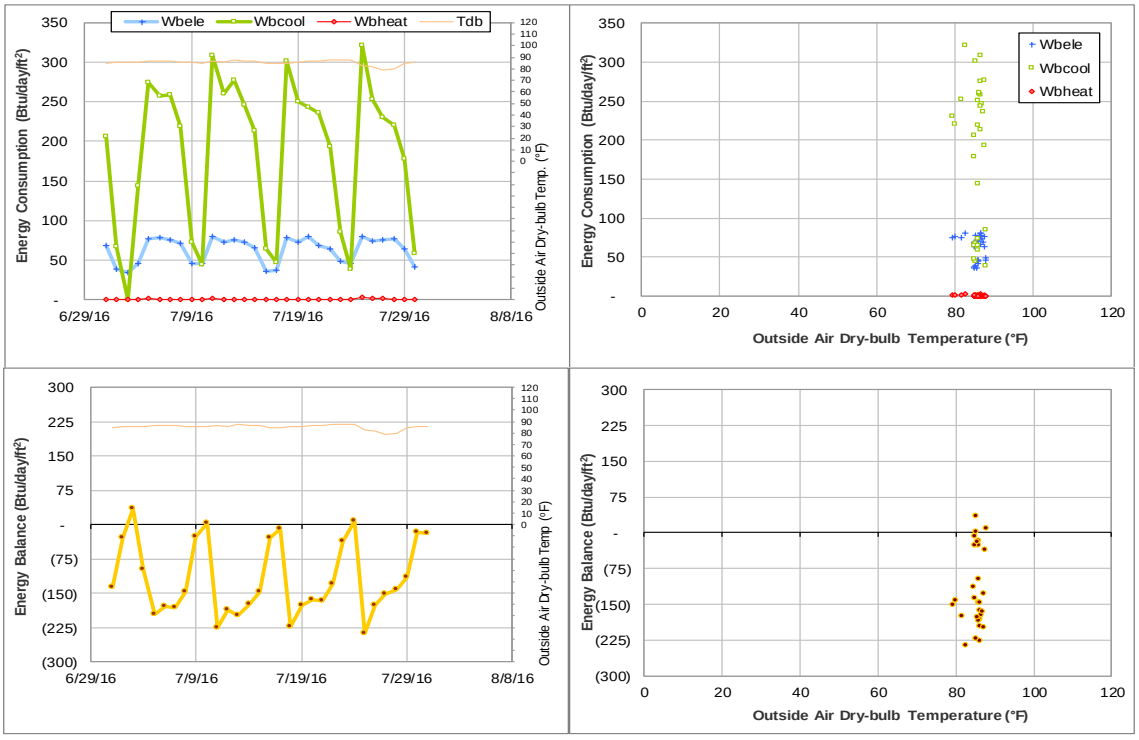


Figure IV-58 Harrington Education Center Classroom Building TAMU BLDG # 438 Energy Balance Plot during July 2016

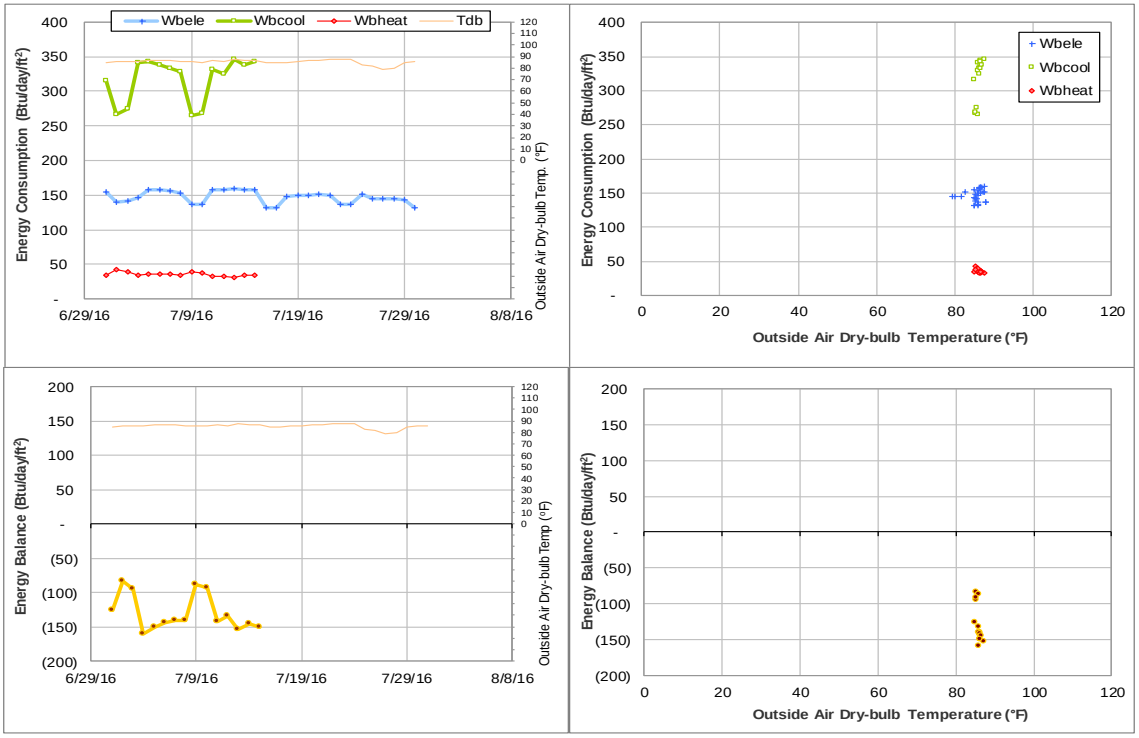


Figure IV-59 Oceanography & Meteorology Building TAMU BLDG # 443 Energy Balance Plot during July 2016

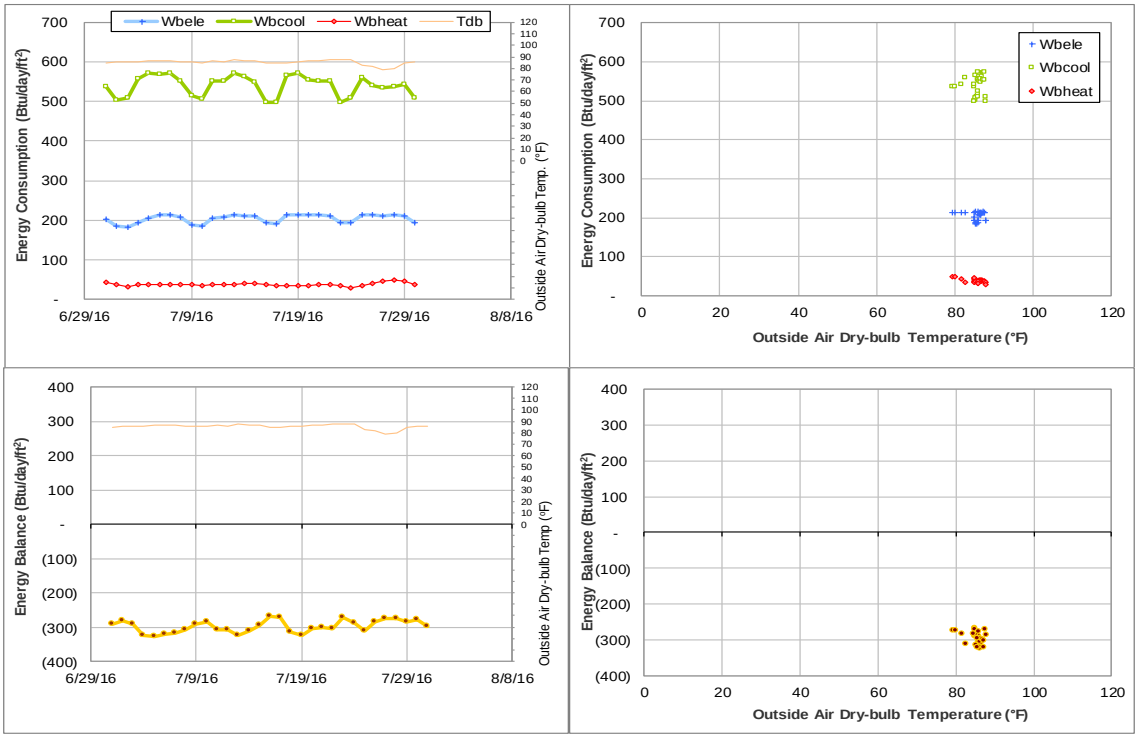


Figure IV-60 Peterson Building TAMU BLDG # 444 Energy Balance Plot during July 2016

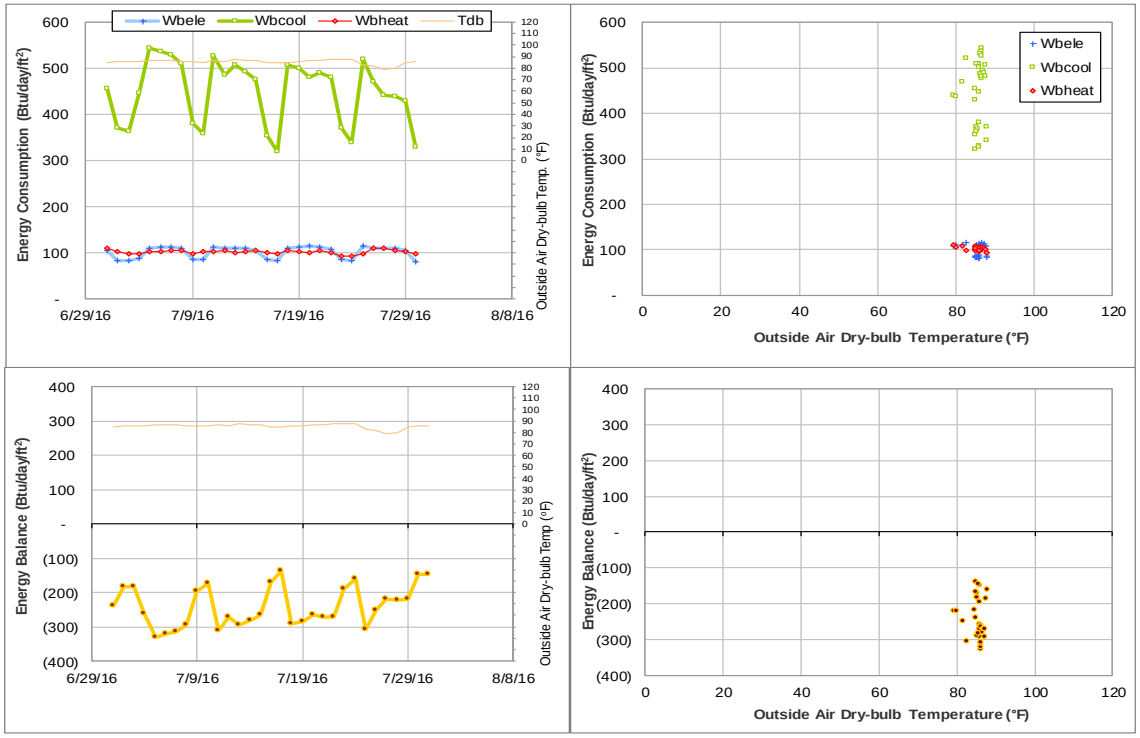


Figure IV-61 Teague Research Center and DPC Annex TAMU BLDG # 445 and 517 Energy Balance Plot during July 2016

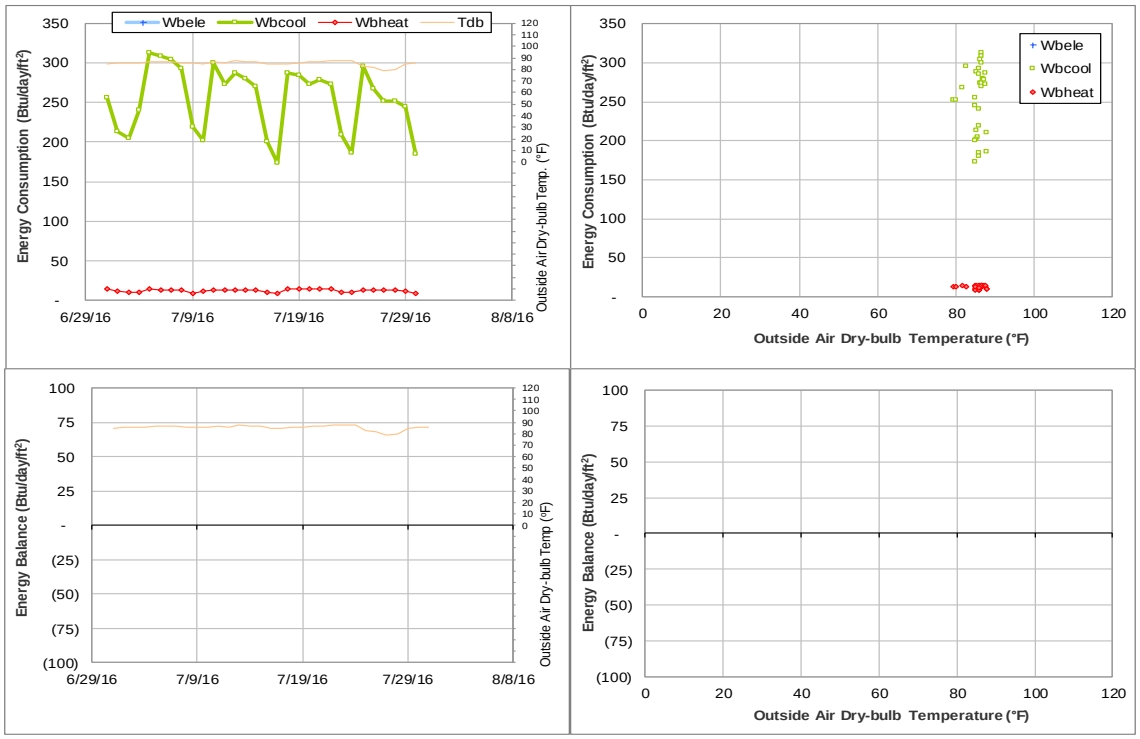


Figure IV-62 Teague Research Center TAMU BLDG # 445 Energy Balance Plot during July 2016

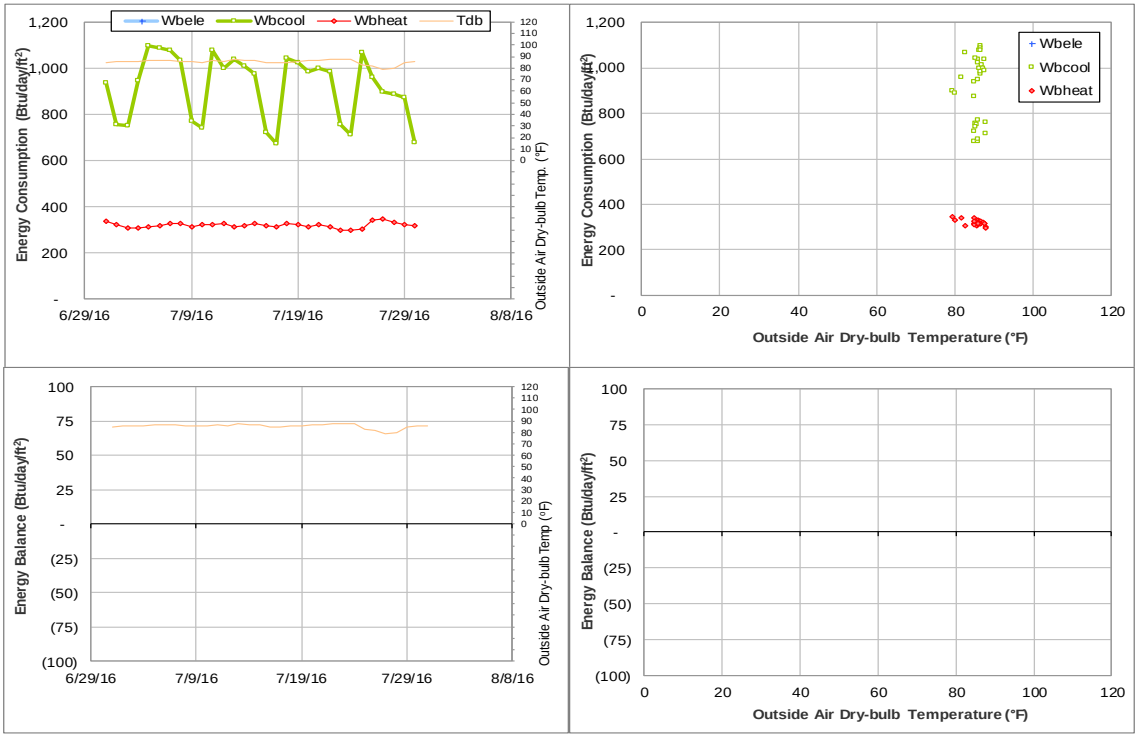


Figure IV-63 DPC Annex TAMU BLDG # 517 Energy Balance Plot during July 2016

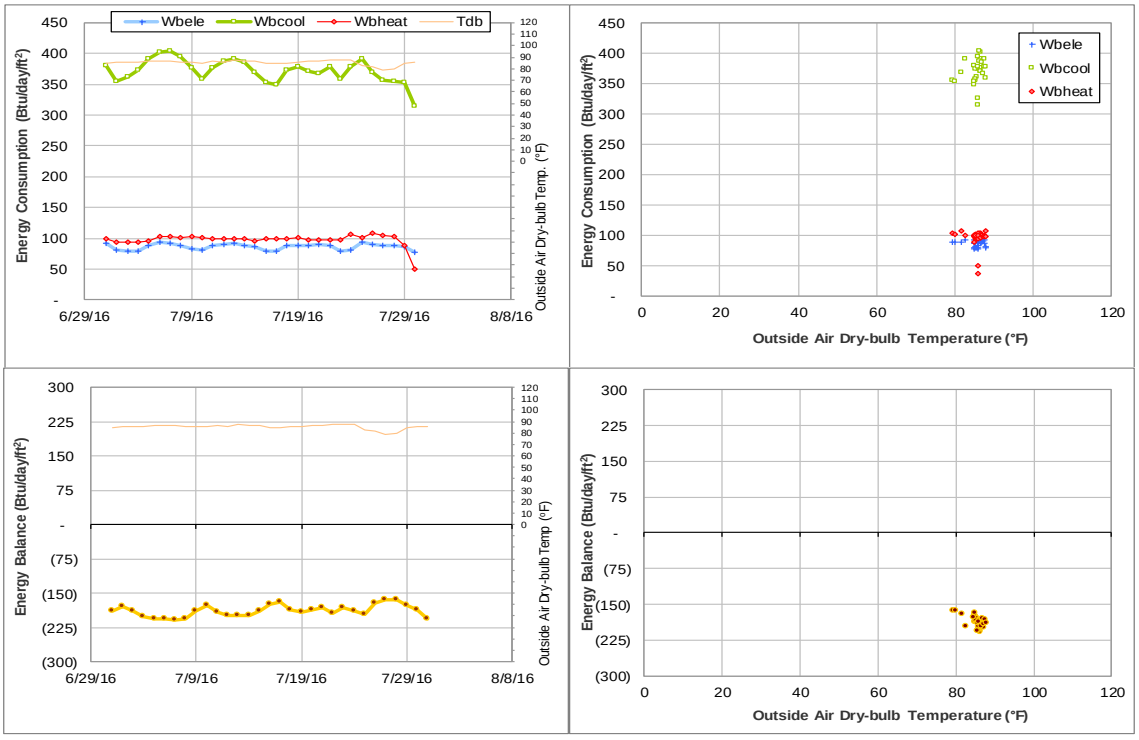


Figure IV-64 Rudder Tower and Theatre Complex TAMU BLDG # 446 Energy Balance Plot during July 2016

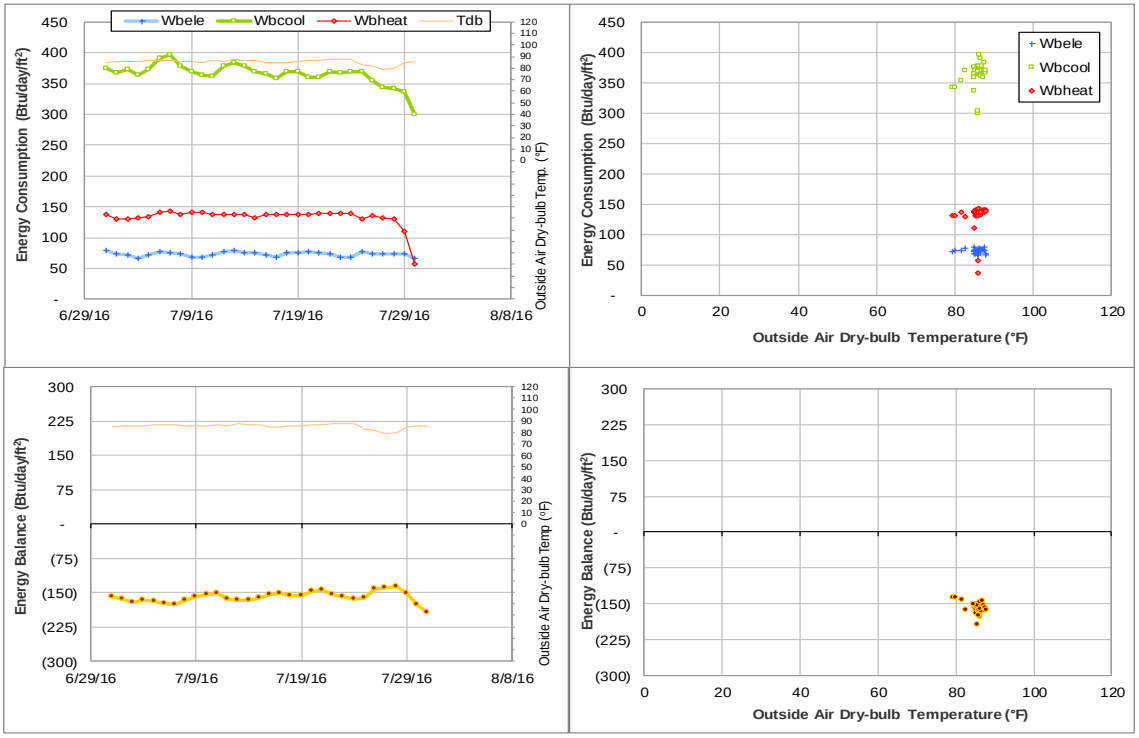


Figure IV-65 Rudder Theatre Complex TAMU BLDG # 446 Energy Balance Plot during July 2016

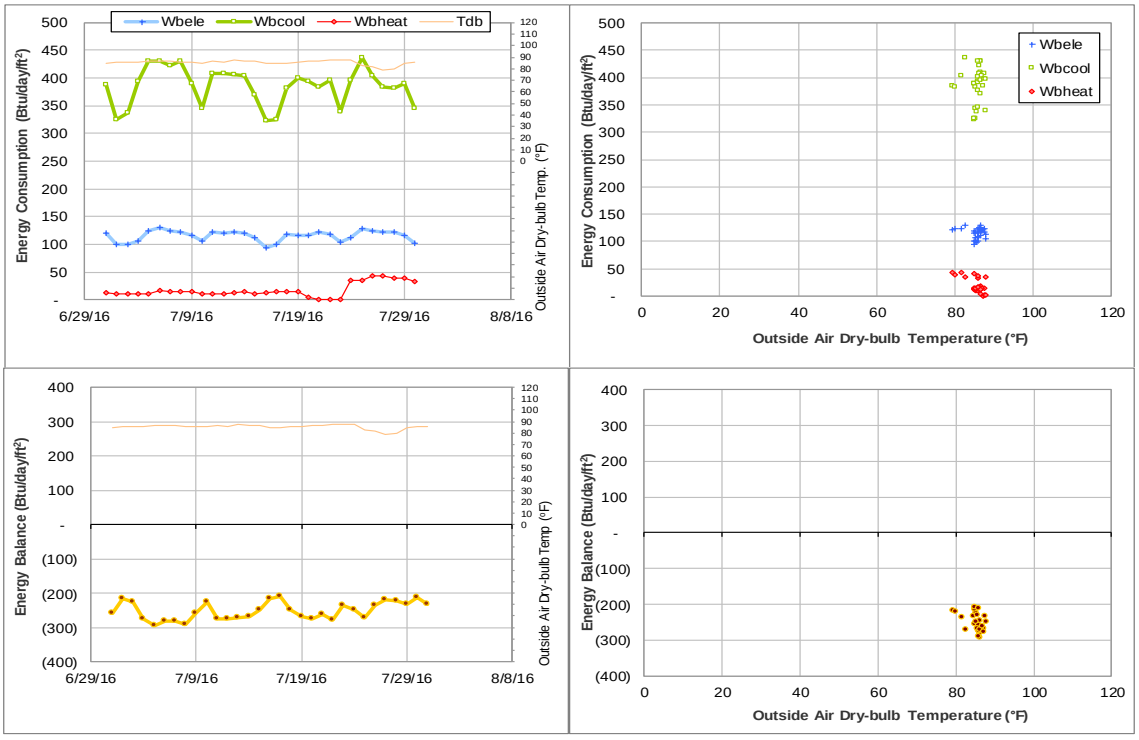


Figure IV-66 Rudder Tower TAMU BLDG # 446 Energy Balance Plot during July 2016

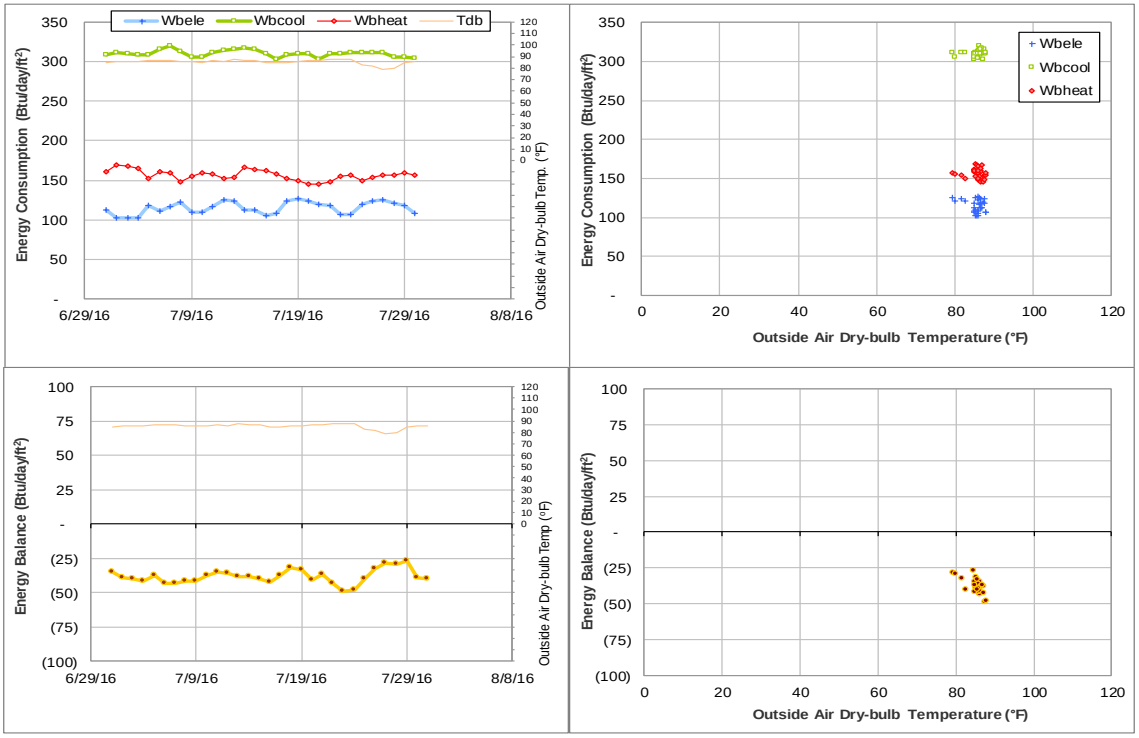


Figure IV-67 Adams Band Hall TAMU BLDG # 448 Energy Balance Plot during July 2016

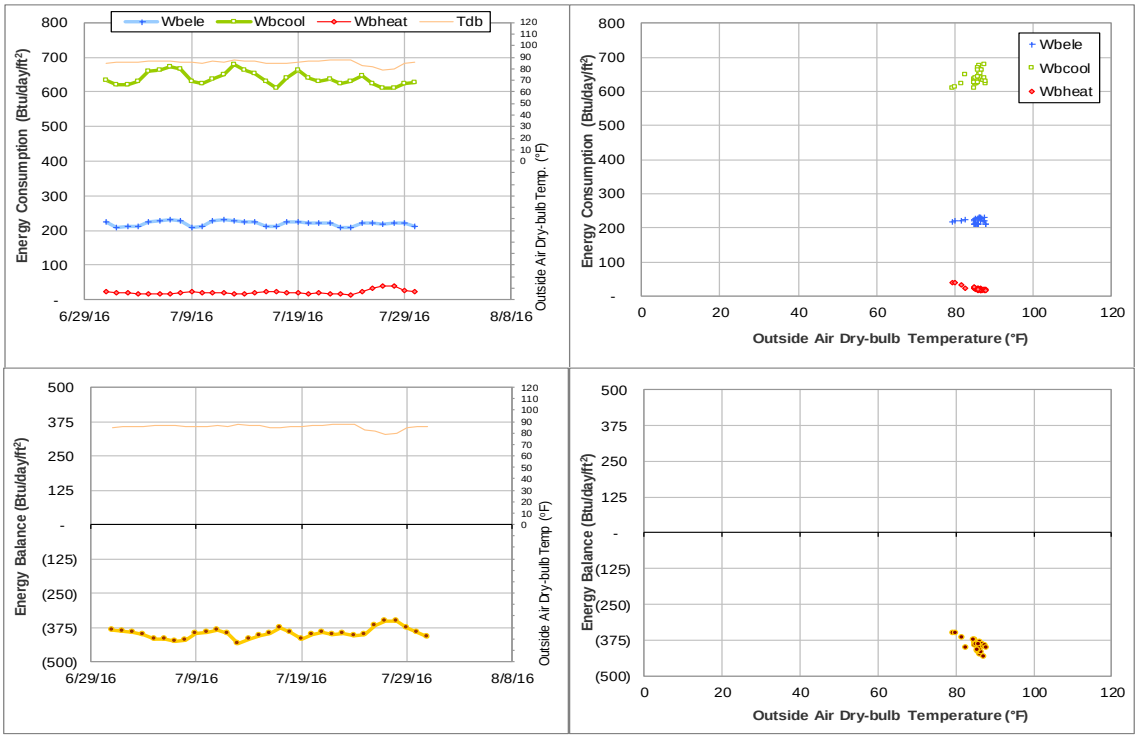


Figure IV-68 Biological Sciences Building - West TAMU BLDG # 449 Energy Balance Plot during July 2016

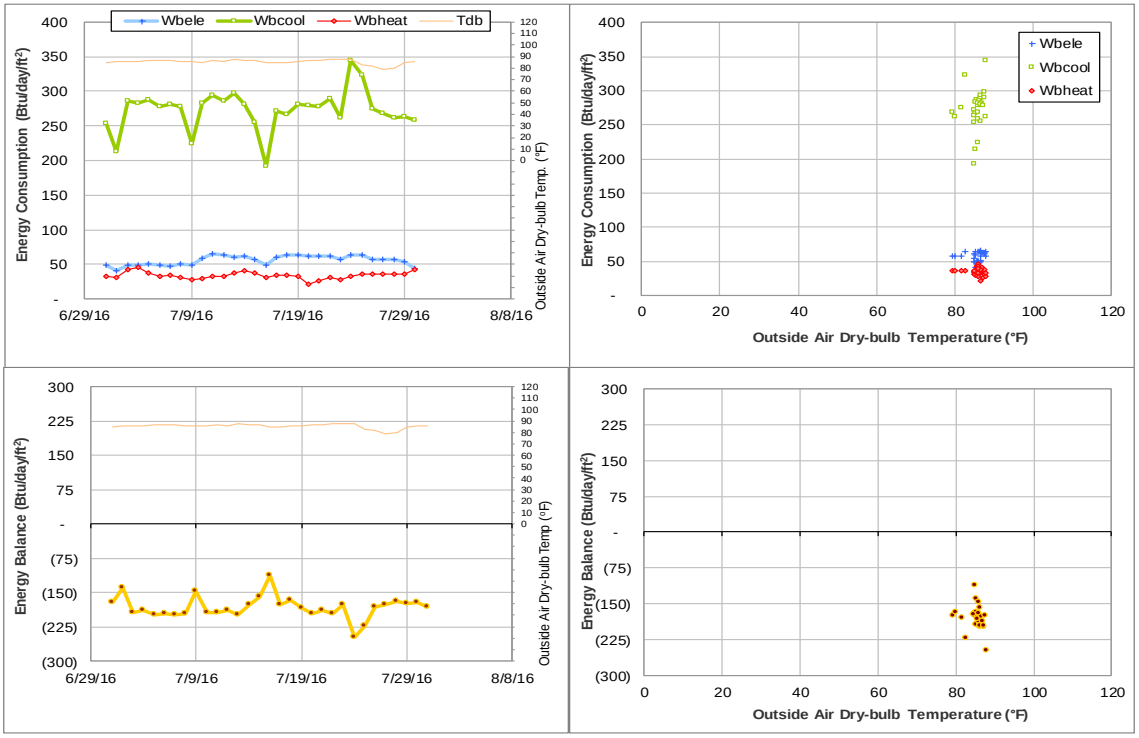


Figure IV-69 Duncan Dining Hall TAMU BLDG # 450 Energy Balance Plot during July 2016

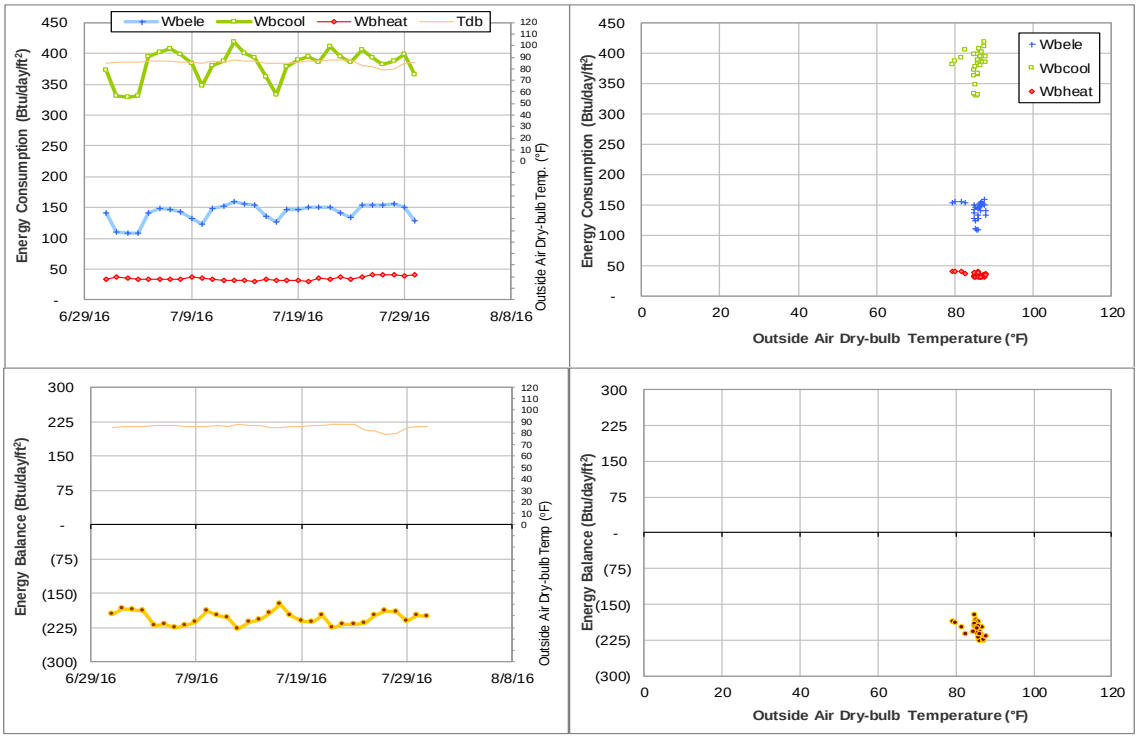


Figure IV-70 MSC TAMU BLDG # 454 Energy Balance Plot during July 2016

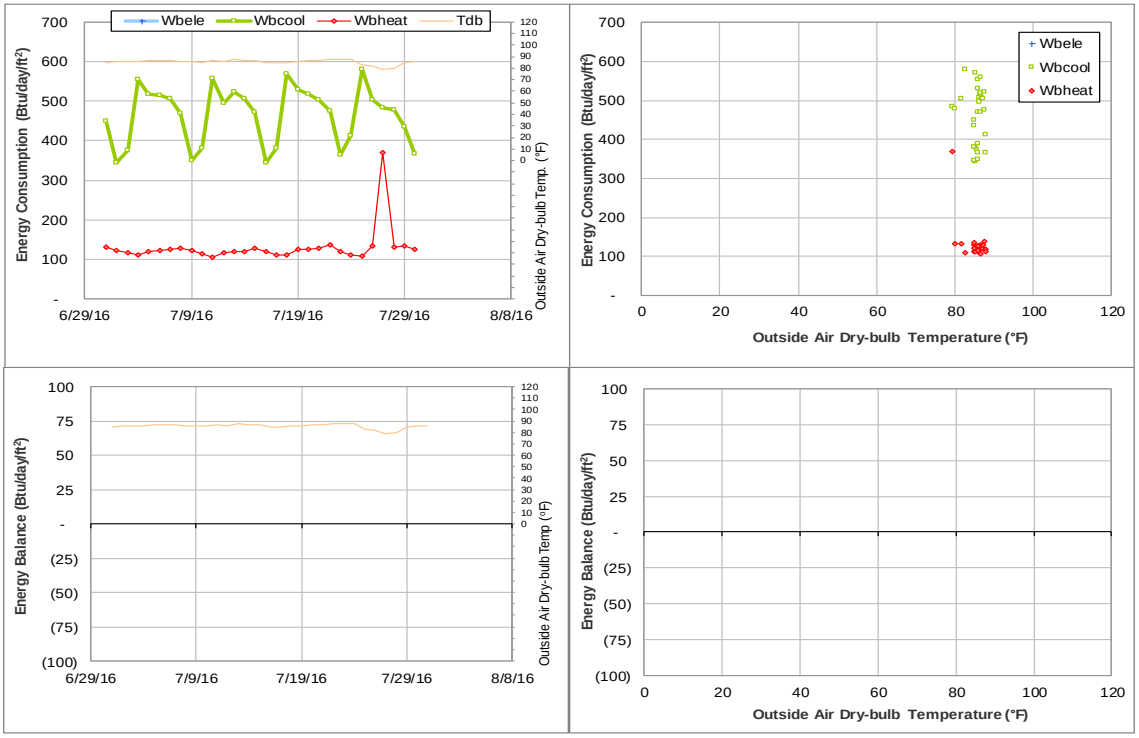


Figure IV-71 Military Sciences Building TAMU BLDG # 456 Energy Balance Plot during July 2016

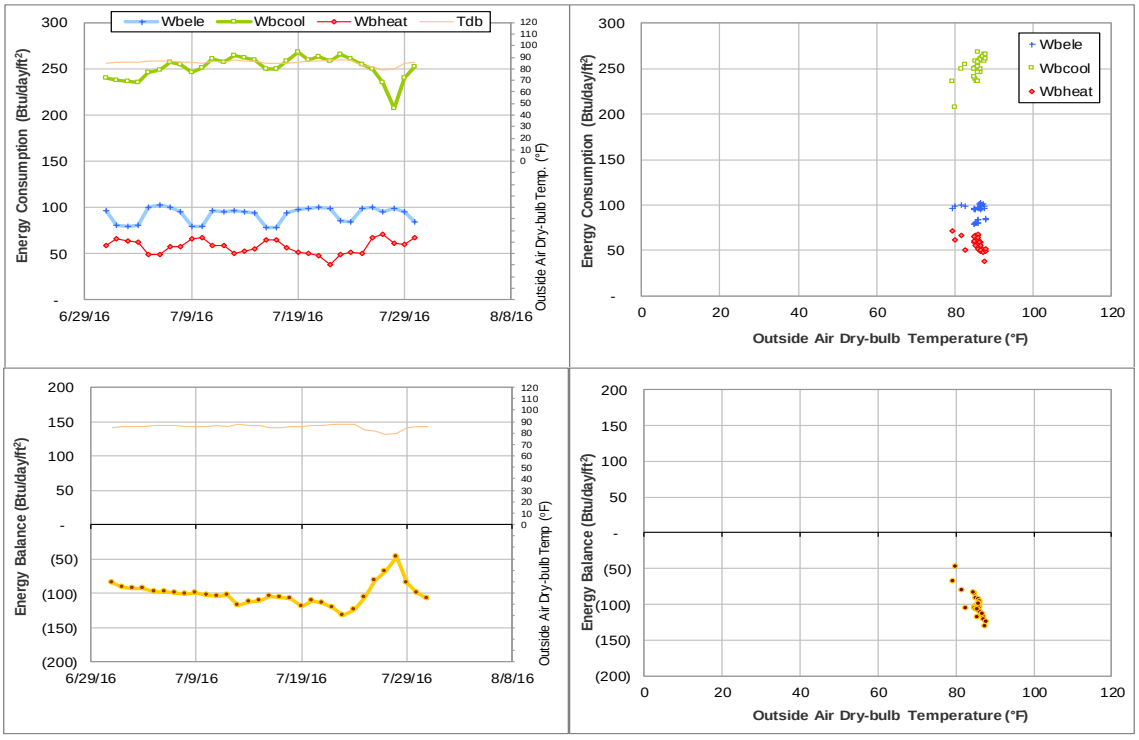


Figure IV-72 TAES Annex Building TAMU BLDG # 457 Energy Balance Plot during July 2016

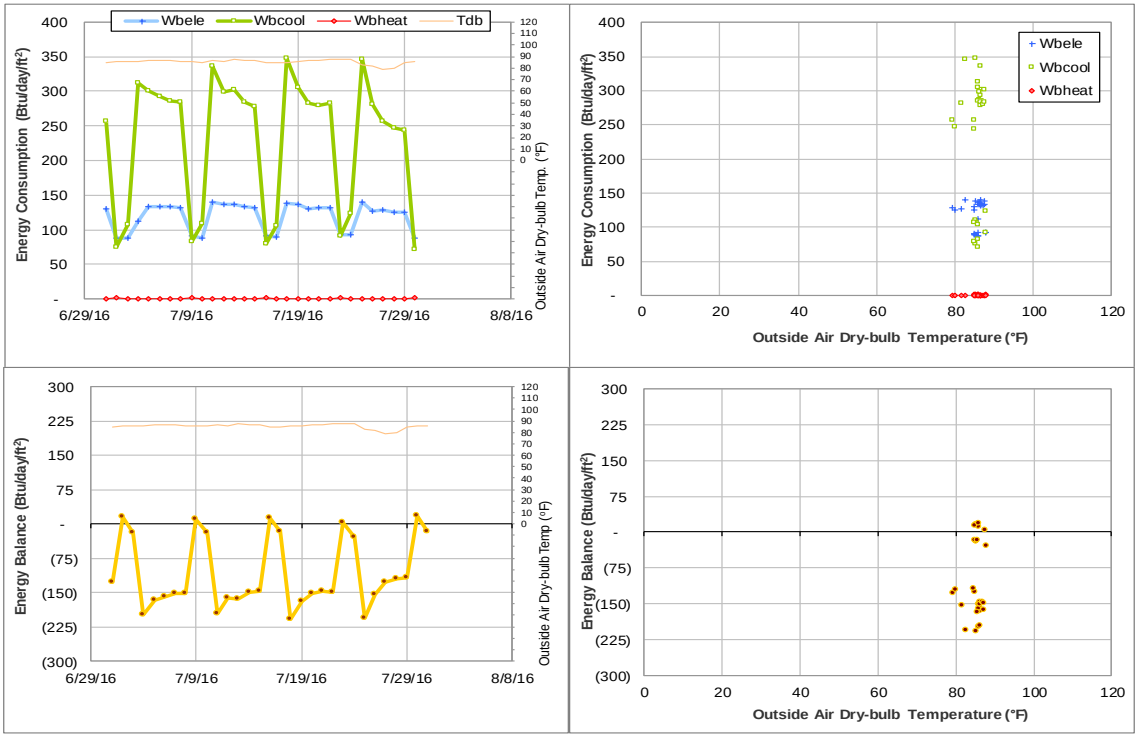


Figure IV-73 Coke Building TAMU BLDG # 461 Energy Balance Plot during July 2016

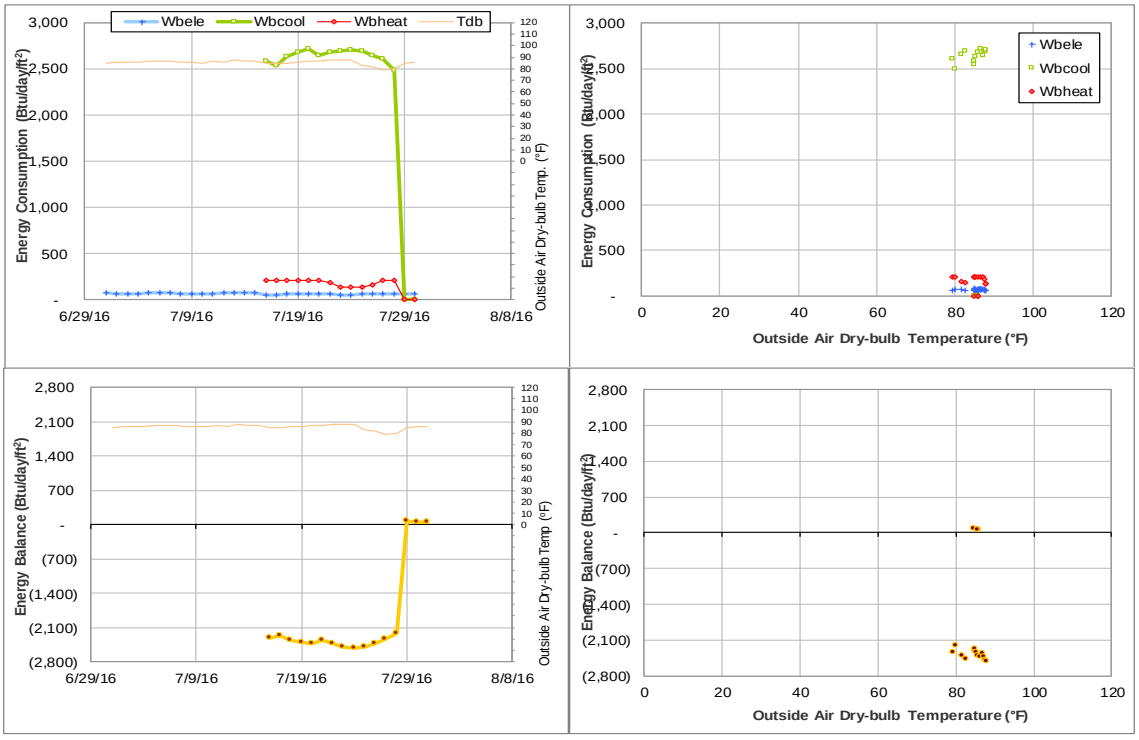


Figure IV-74 Academic Building TAMU BLDG # 462 Energy Balance Plot during July 2016

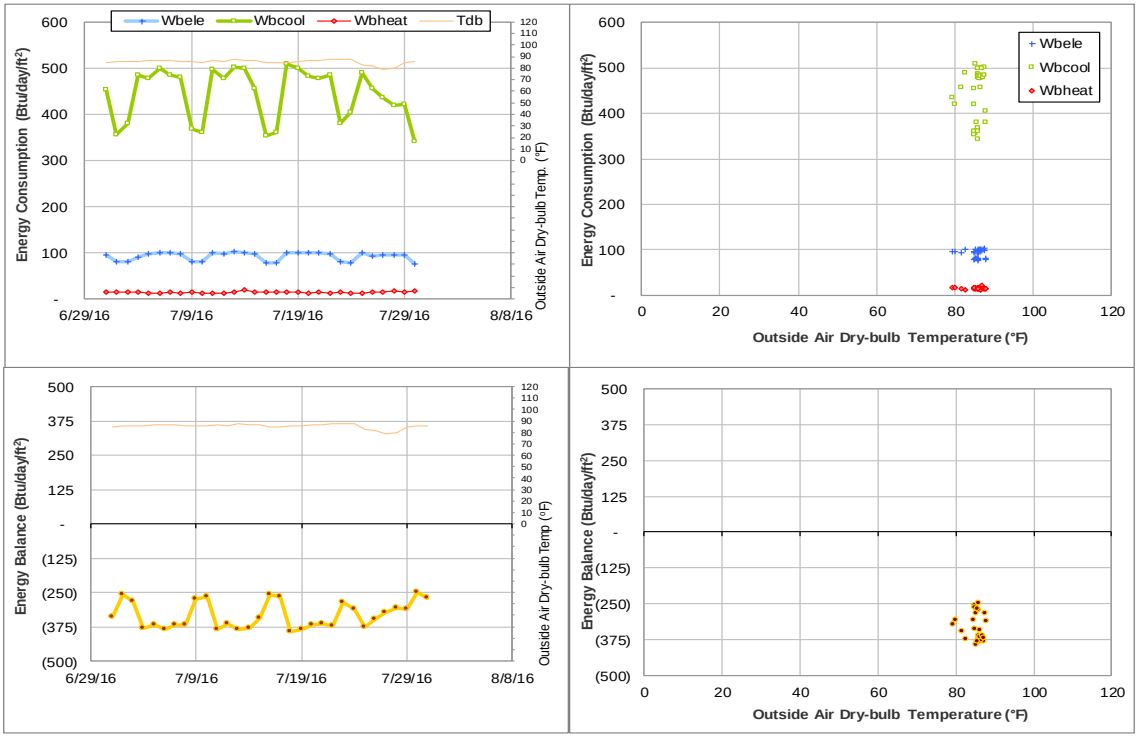


Figure IV-75 Psychology Building TAMU BLDG # 463 Energy Balance Plot during July 2016

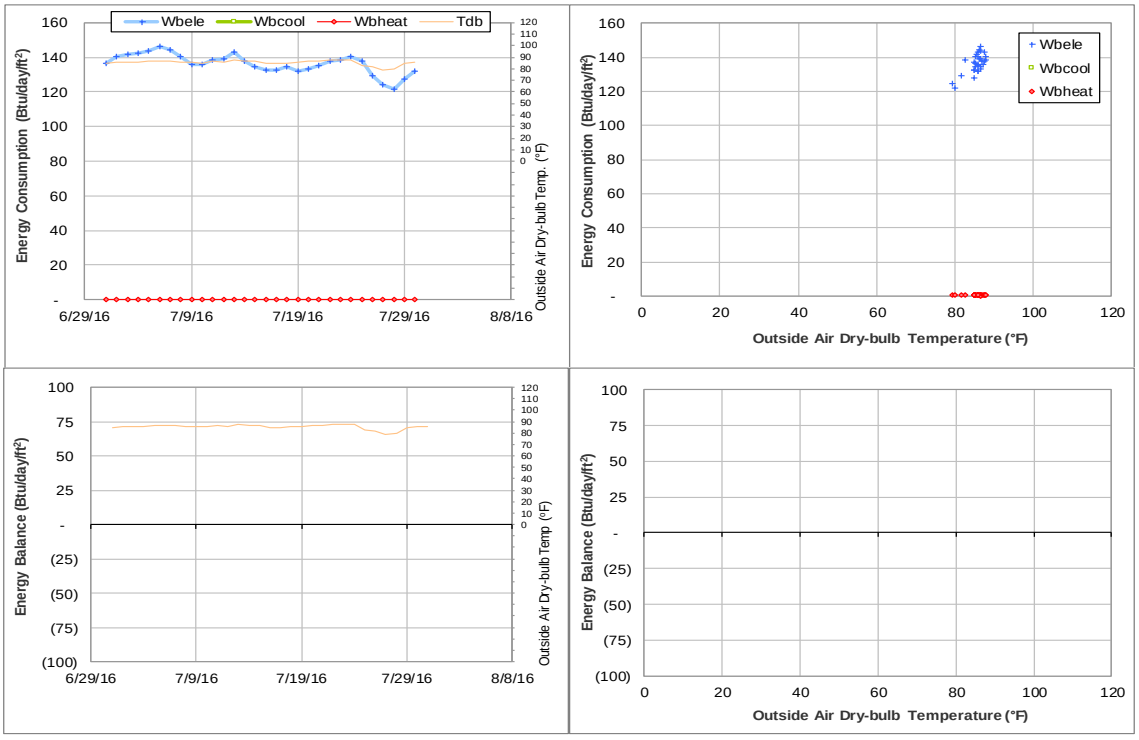


Figure IV-76 State Chemist Building TAMU BLDG # 464 Energy Balance Plot during July 2016

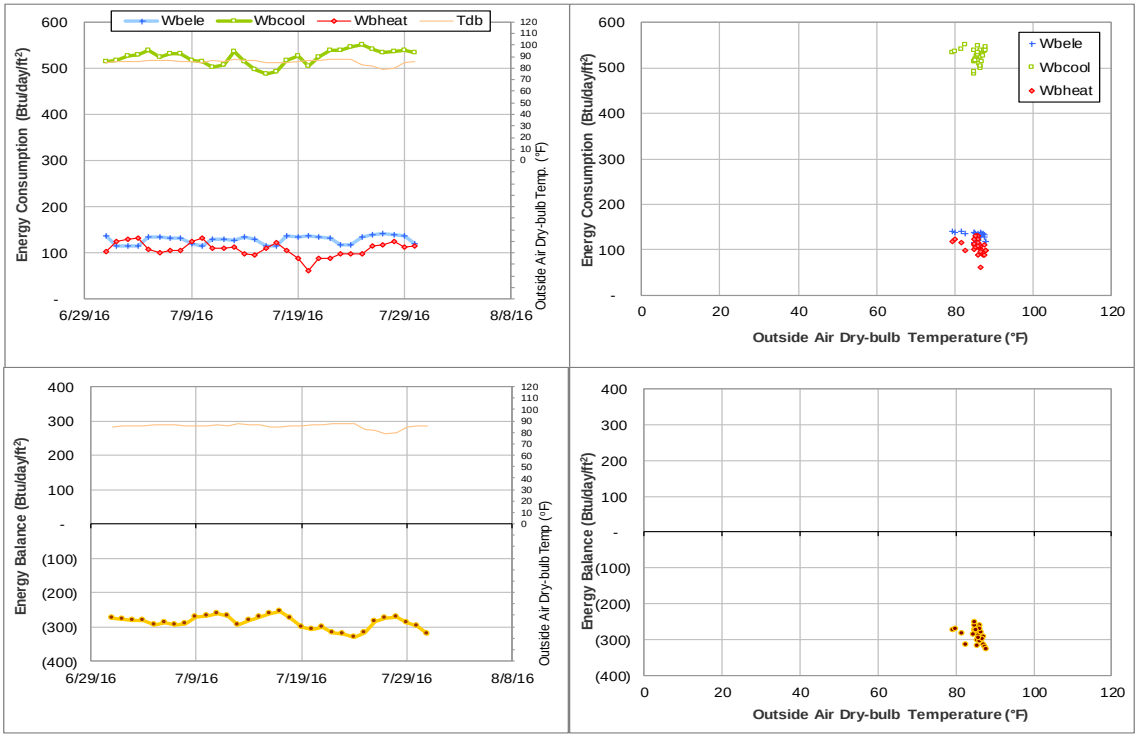


Figure IV-77 Butler Hall TAMU BLDG # 465 Energy Balance Plot during July 2016

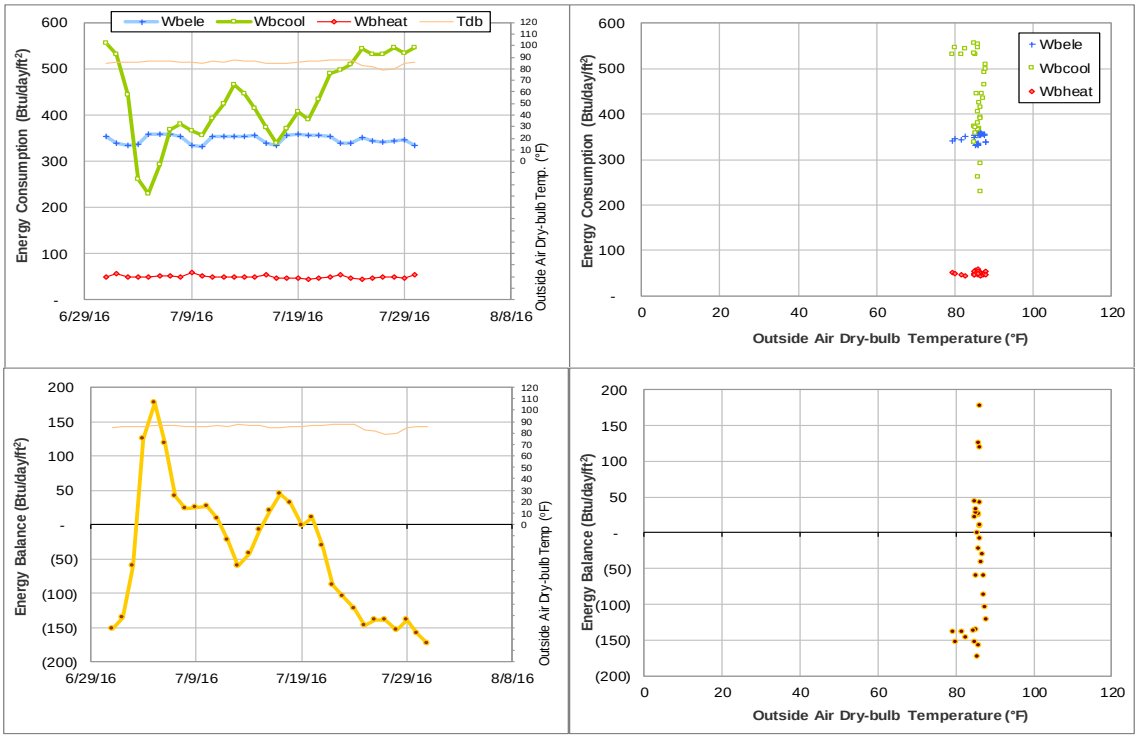


Figure IV-78 Biological Sciences Building - East TAMU BLDG # 467 Energy Balance Plot during July 2016

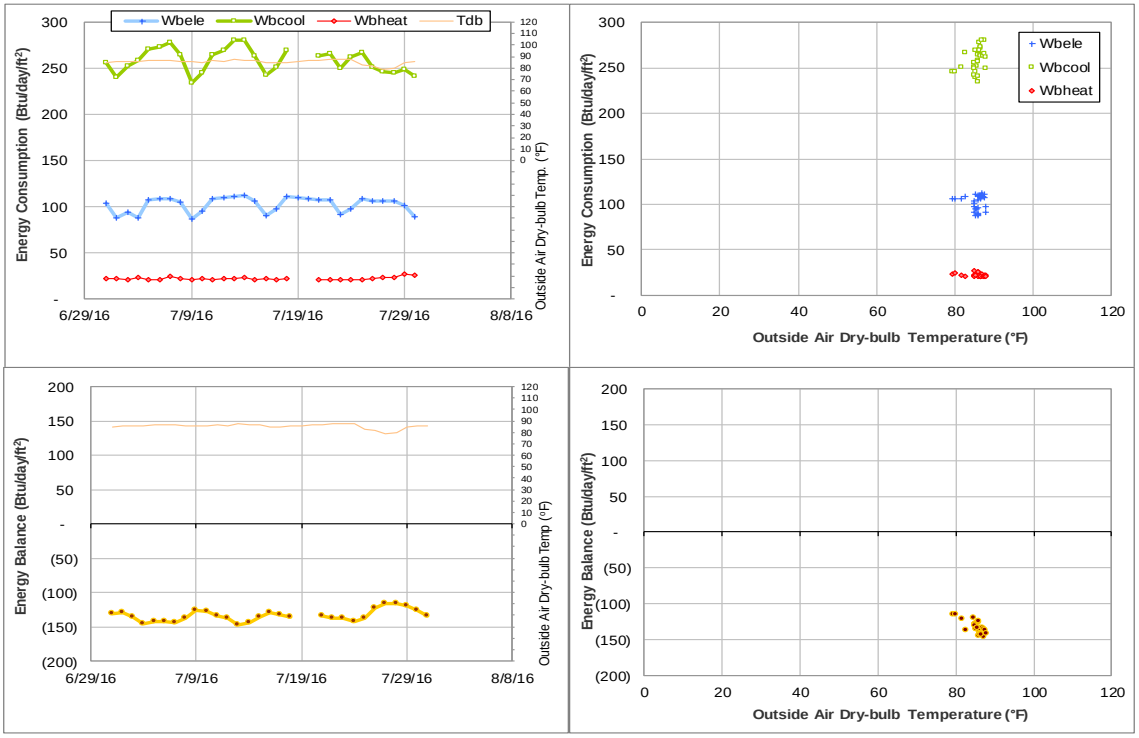


Figure IV-79 Evans Library TAMU BLDG # 468 Energy Balance Plot during July 2016

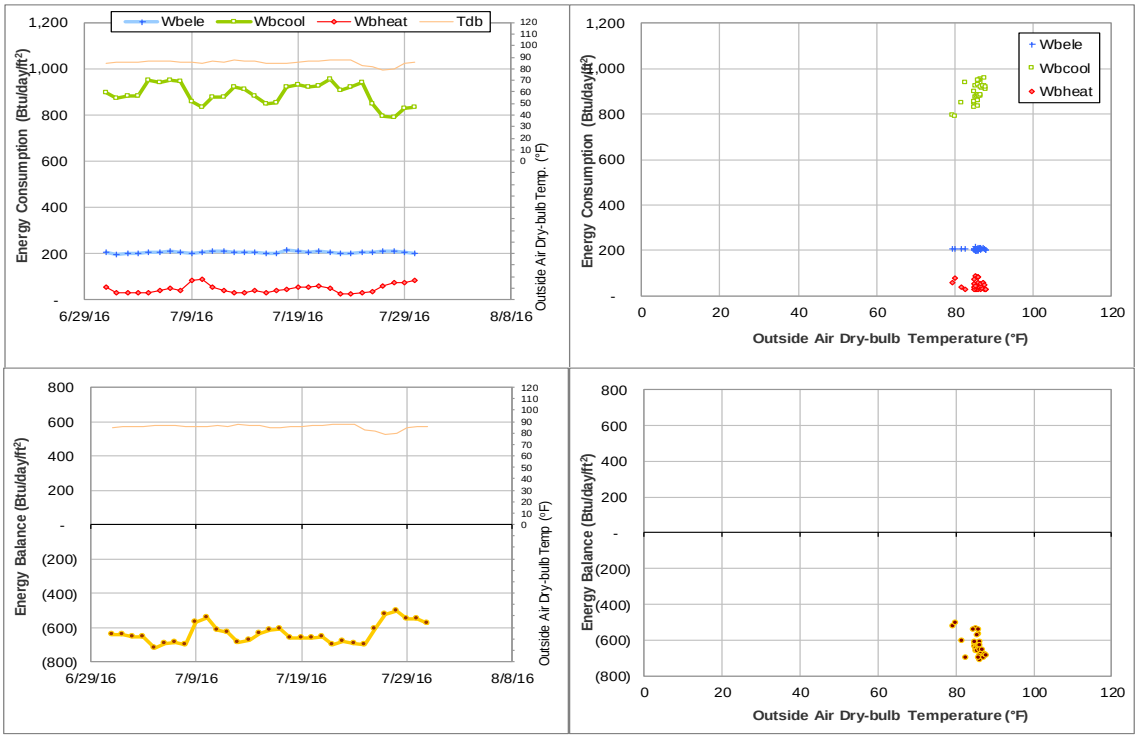


Figure IV-80 Central Campus Parking Garage TAMU BLDG # 469 Energy Balance Plot during July 2016

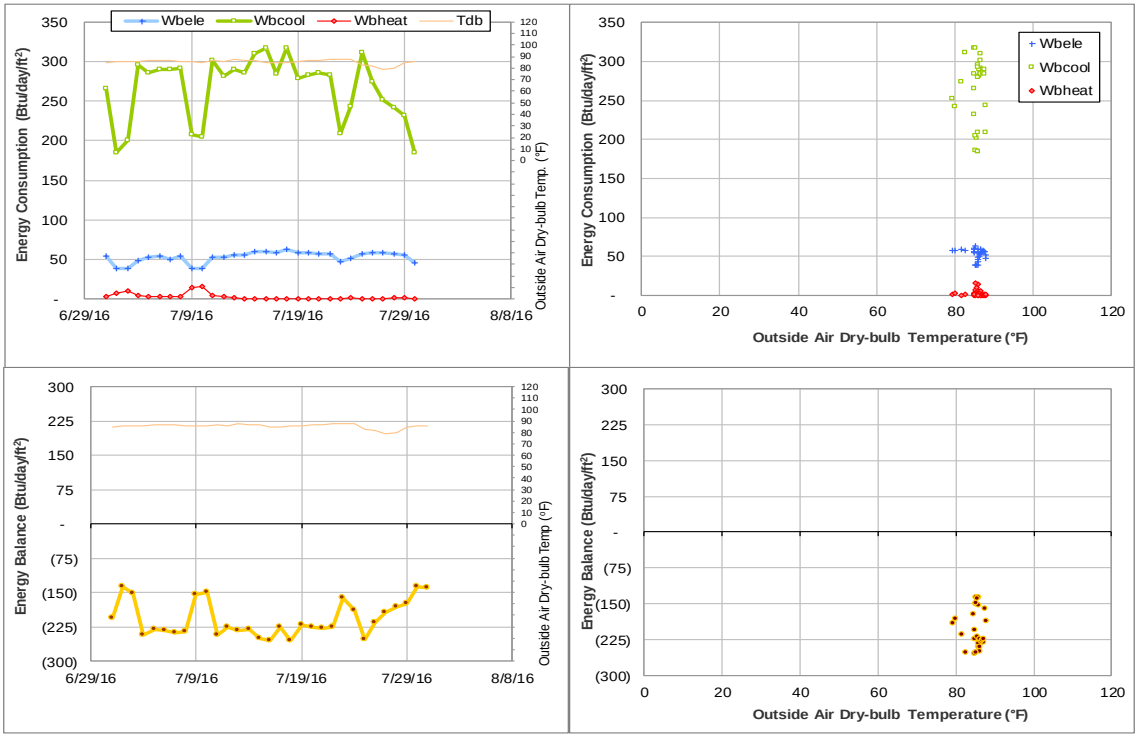


Figure IV-81 Glasscock History Bldg TAMU BLDG # 470 Energy Balance Plot during July 2016

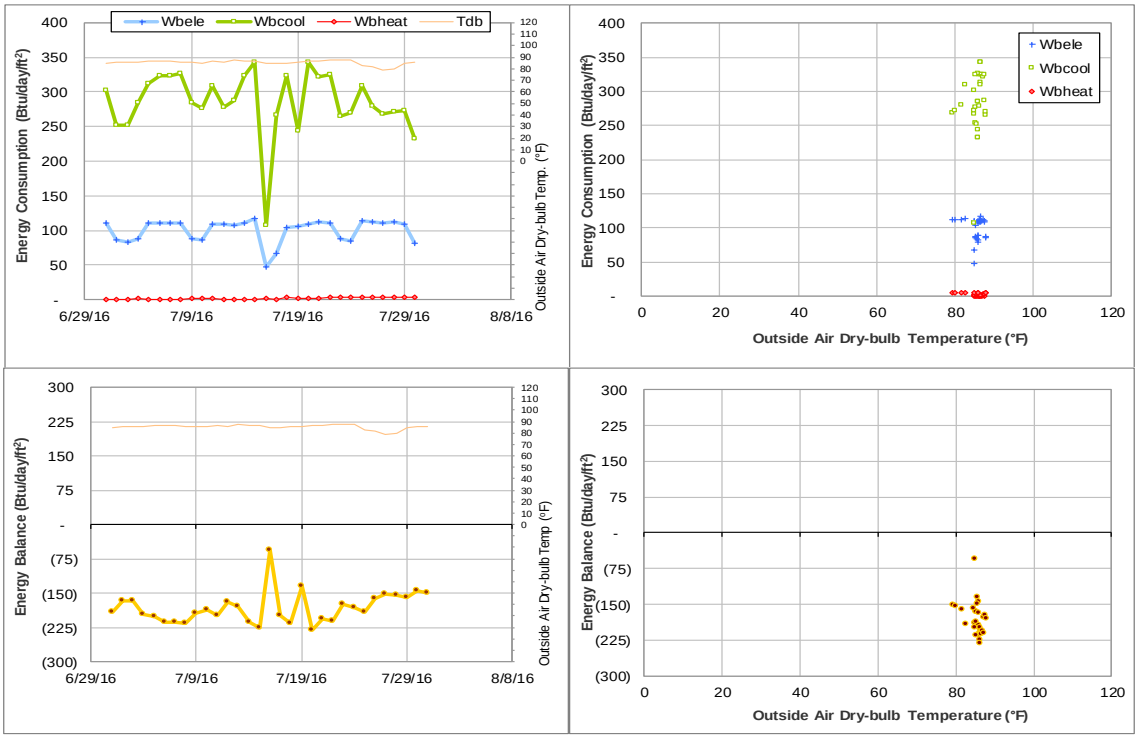


Figure IV-82 Pavilion TAMU BLDG # 471 Energy Balance Plot during July 2016

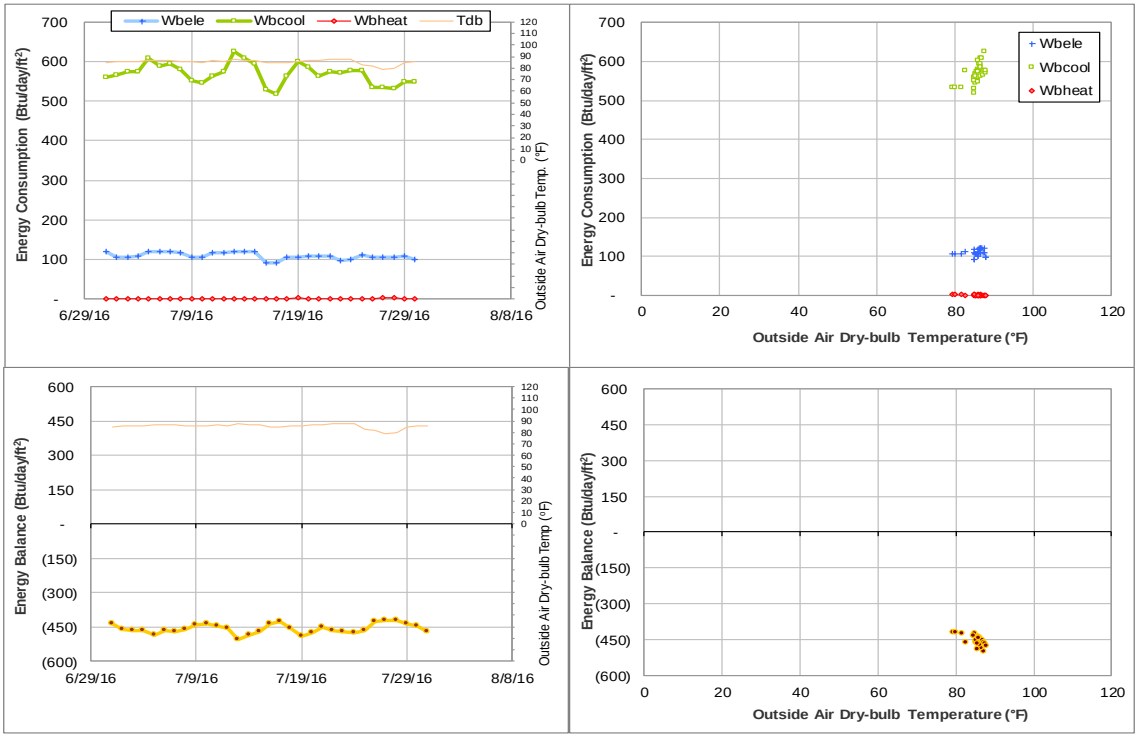


Figure IV-83 Animal Industries TAMU BLDG # 472 Energy Balance Plot during July 2016

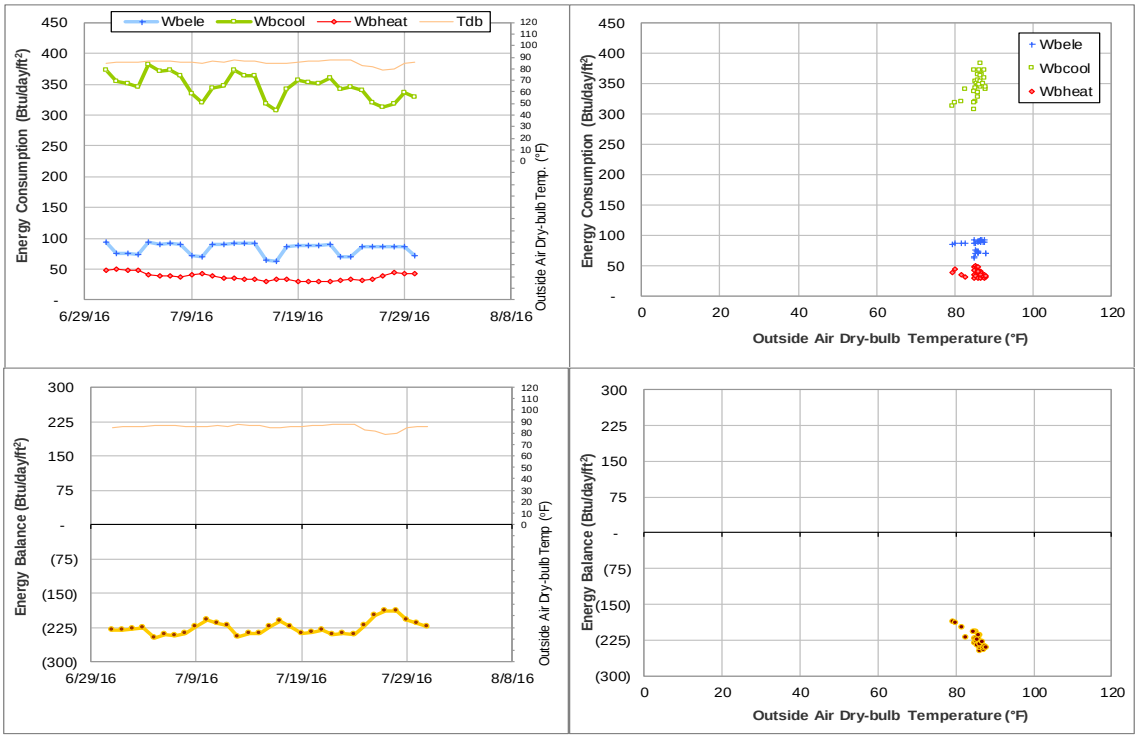


Figure IV-84 Williams Administration Building TAMU BLDG # 473 Energy Balance Plot during July 2016

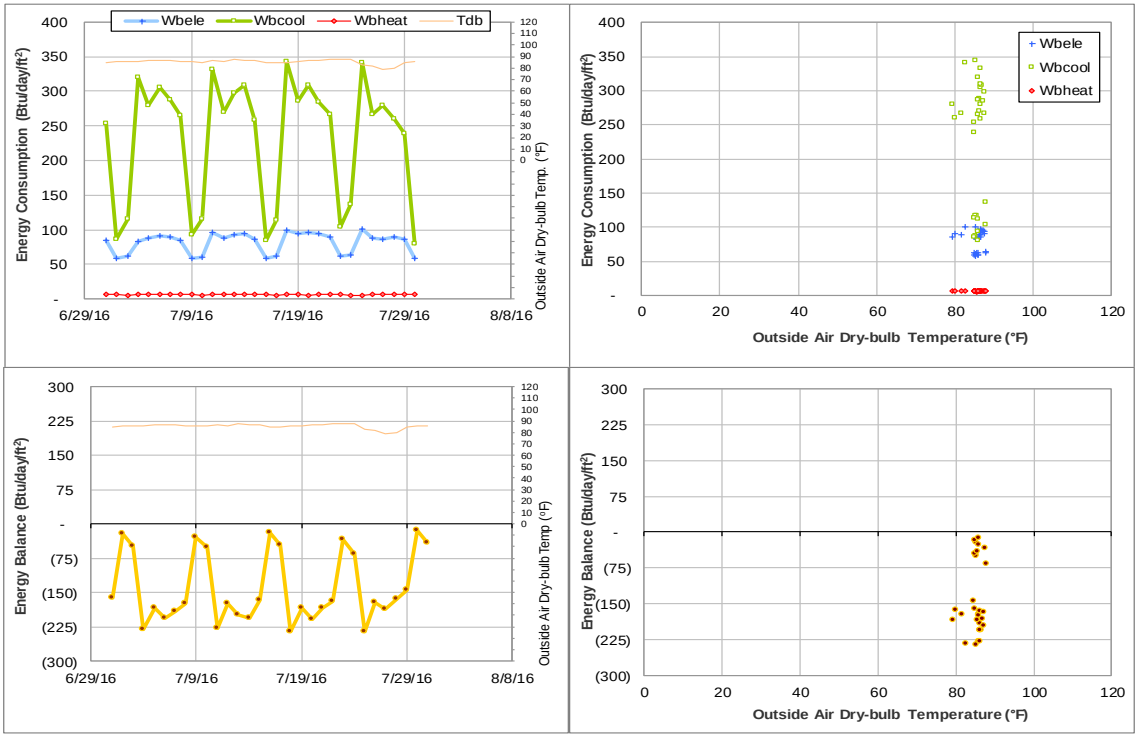


Figure IV-85 YMCA Building TAMU BLDG # 474 Energy Balance Plot during July 2016

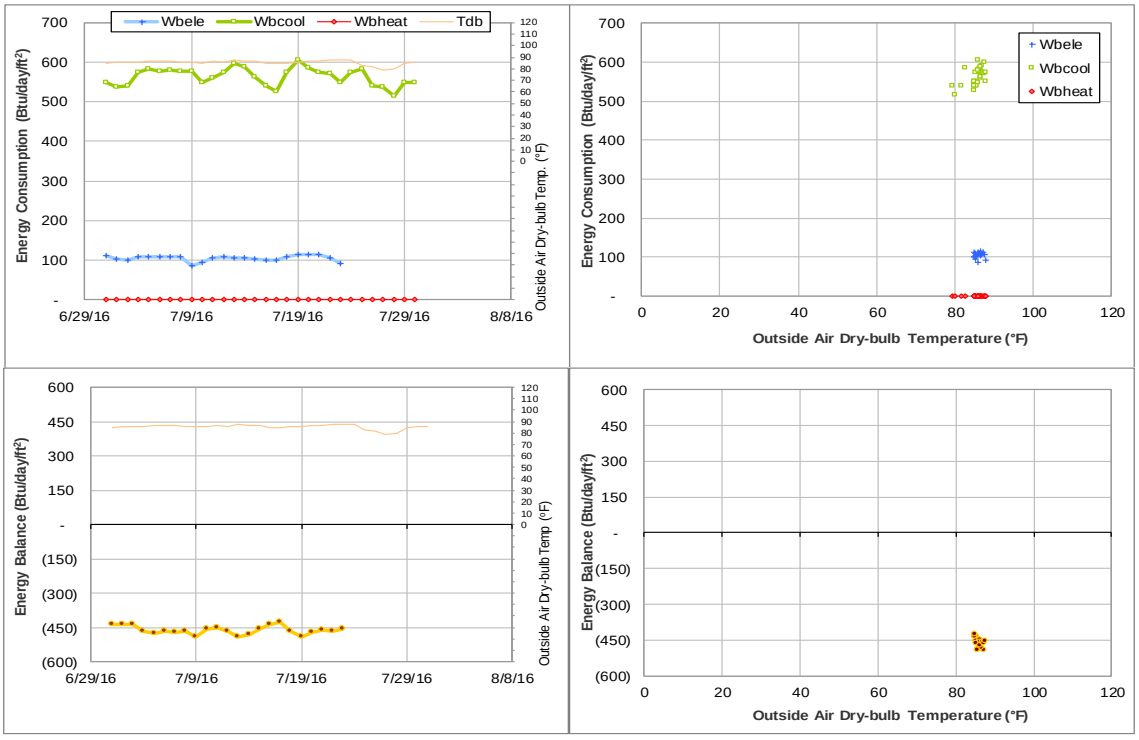


Figure IV-86 Francis Hall TAMU BLDG # 476 Energy Balance Plot during July 2016

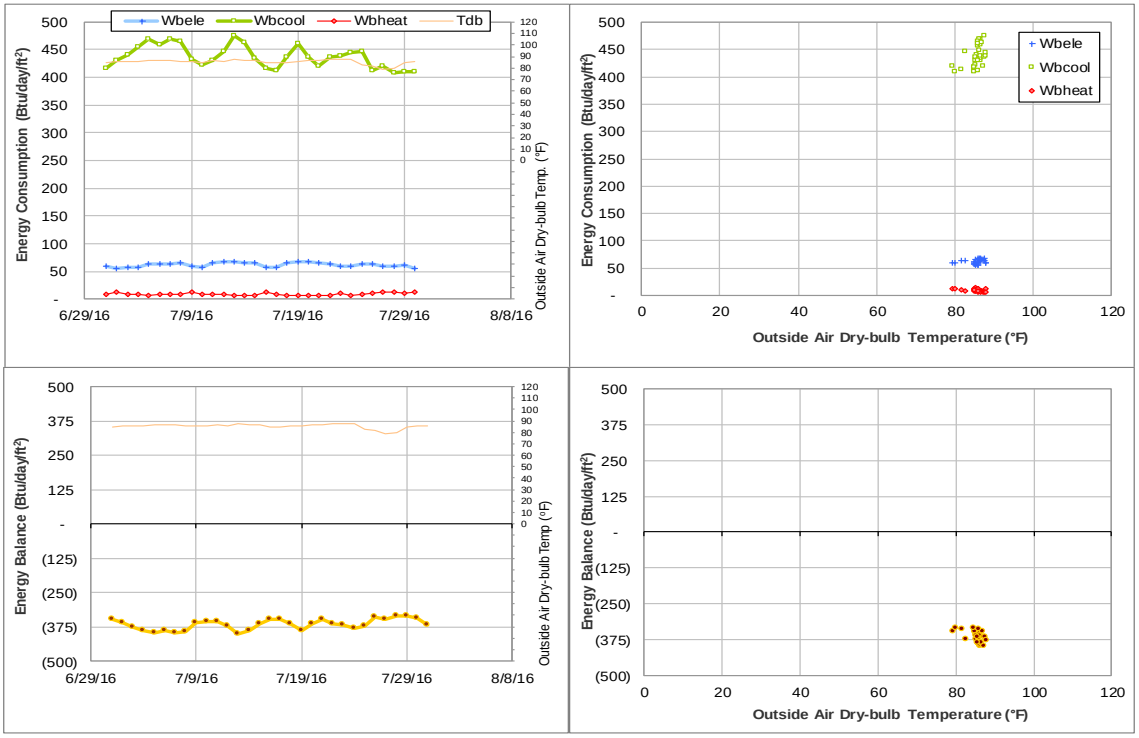


Figure IV-87 Anthropology Building TAMU BLDG # 477 Energy Balance Plot during July 2016

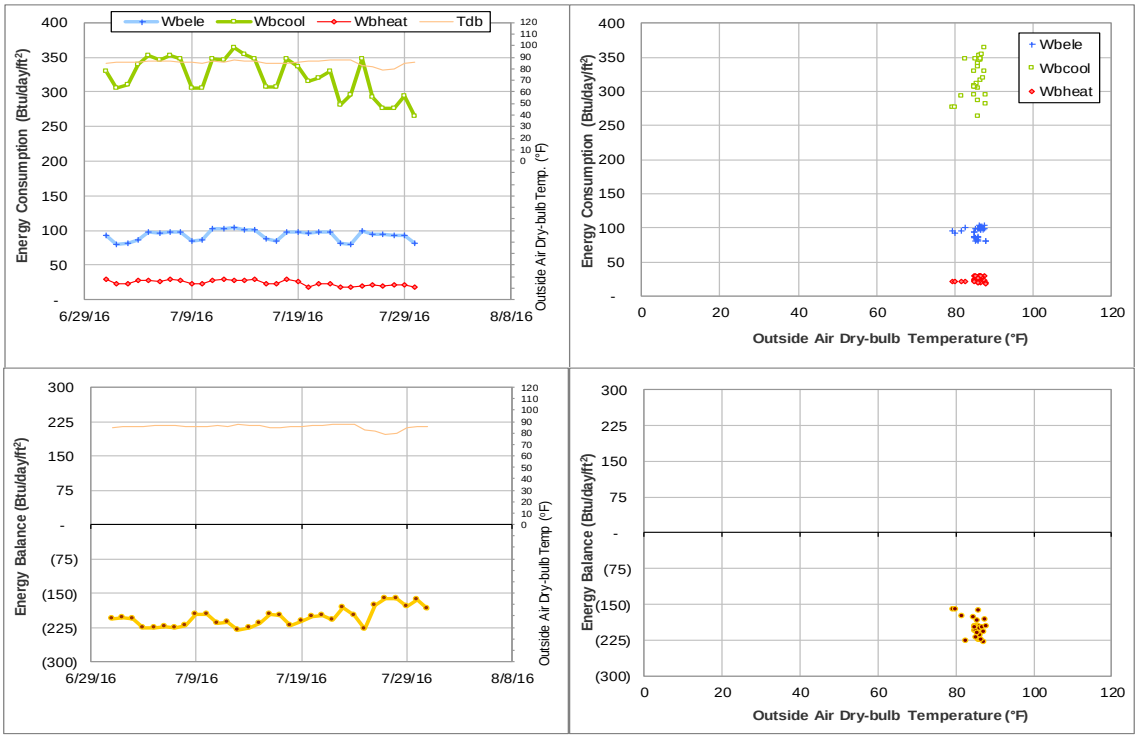


Figure IV-88 Scoates Hall TAMU BLDG # 478 Energy Balance Plot during July 2016

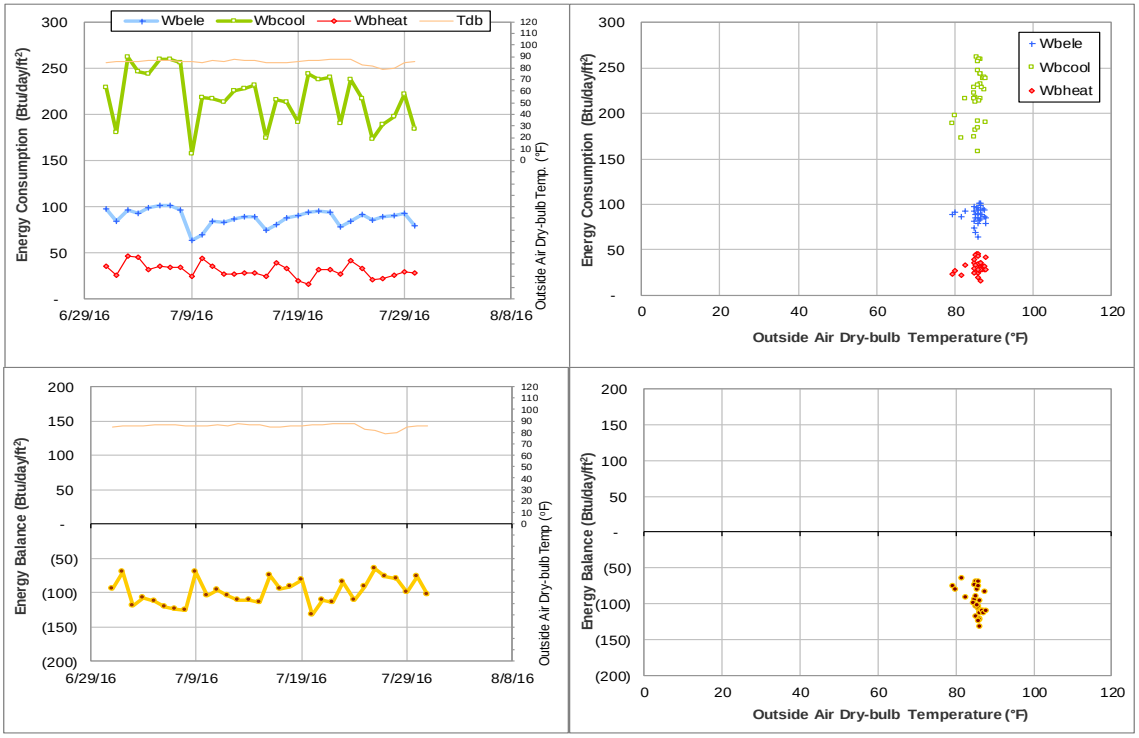


Figure IV-89 Bolton Hall TAMU BLDG # 480 Energy Balance Plot during July 2016

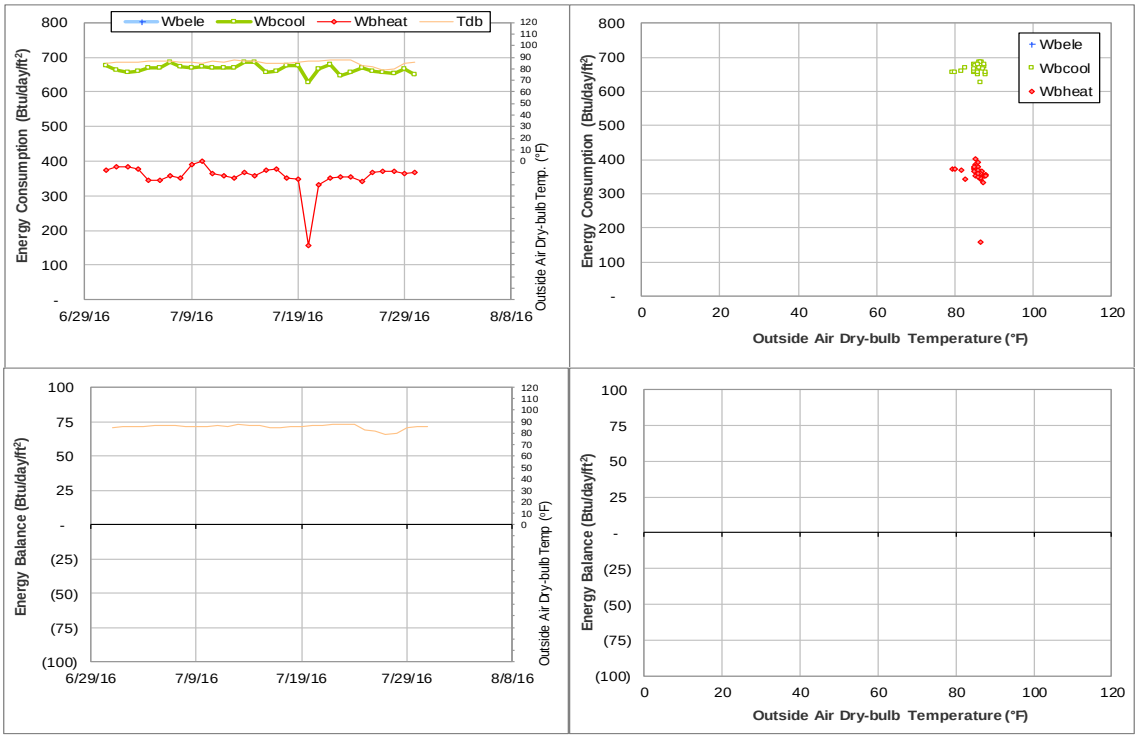


Figure IV-90 Heaton Hall TAMU BLDG # 481 Energy Balance Plot during July 2016

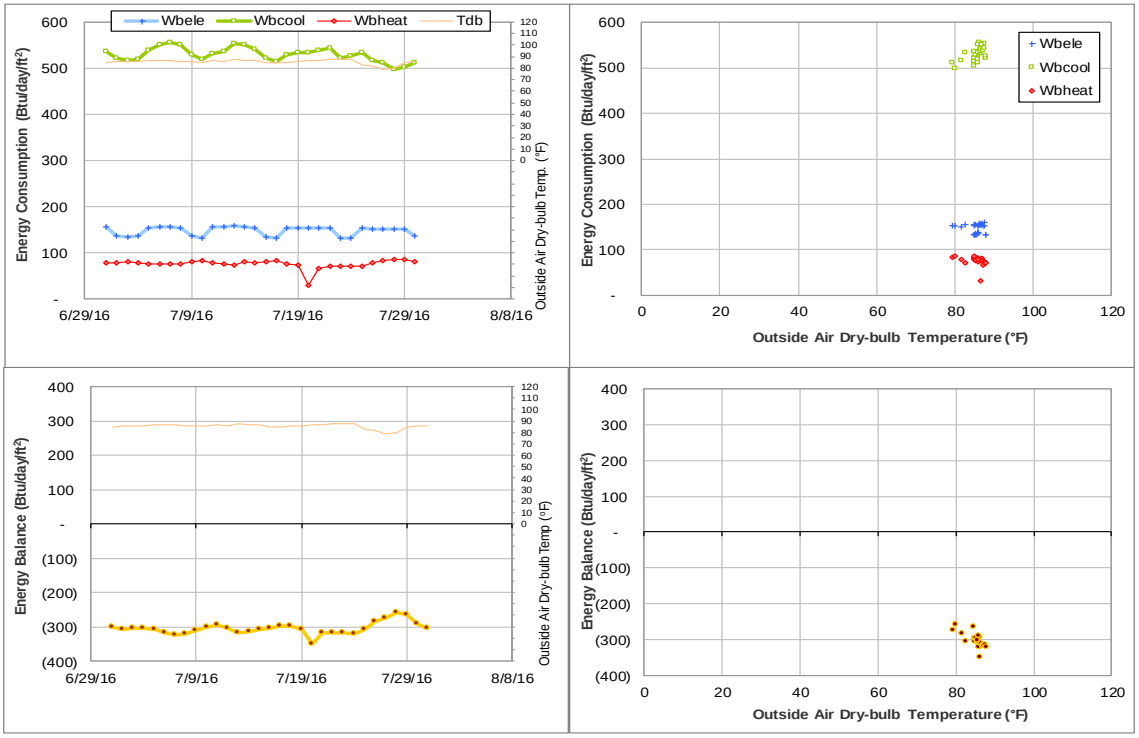


Figure IV-91 Fermier Hall TAMU BLDG # 482 Energy Balance Plot during July 2016

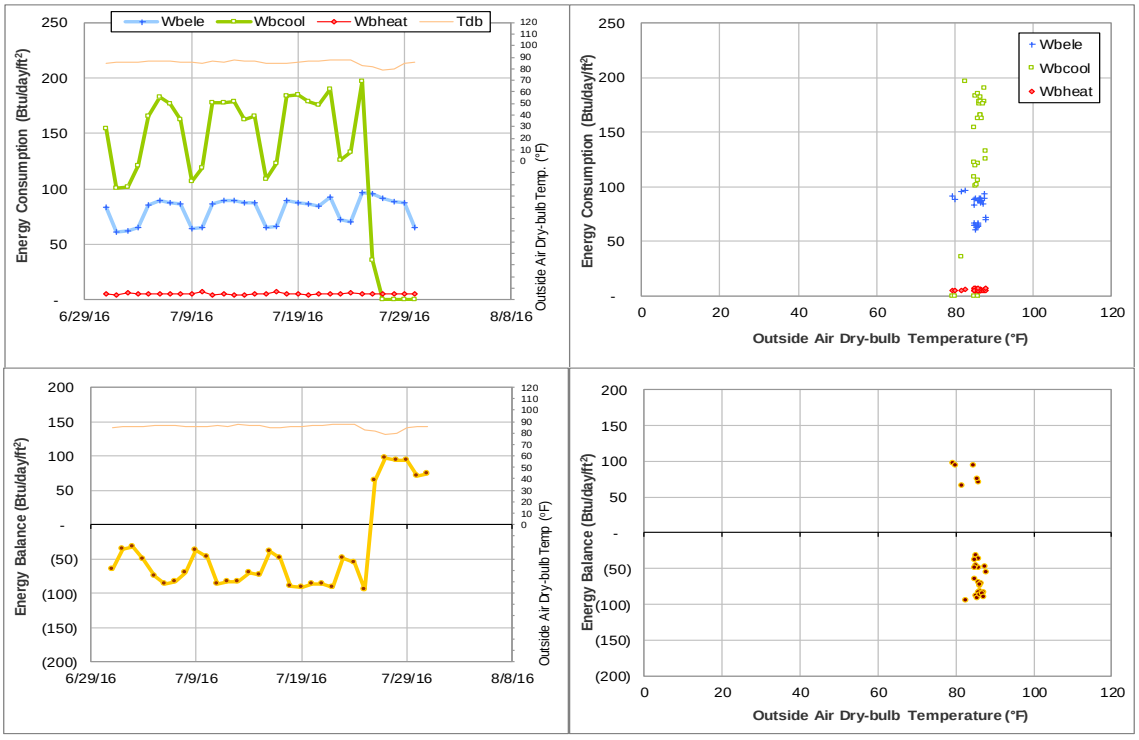


Figure IV-92 Thompson Hall TAMU BLDG # 483 Energy Balance Plot during July 2016

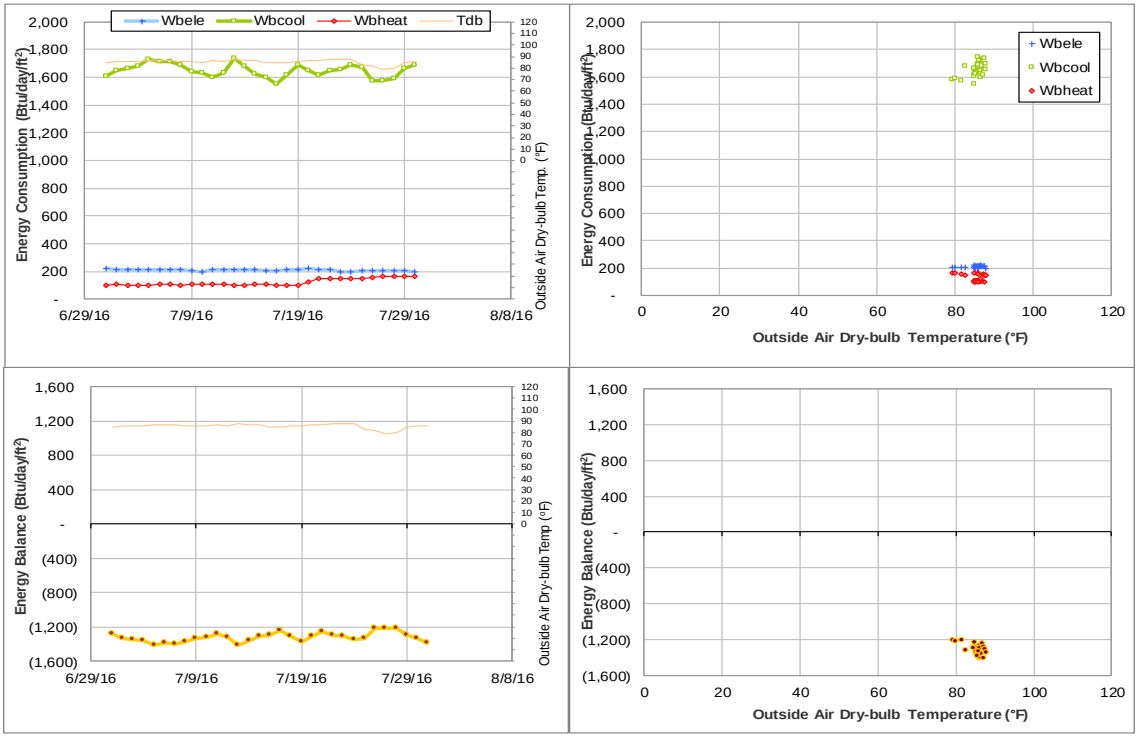


Figure IV-93 Chemistry Building TAMU BLDG # 484 Energy Balance Plot during July 2016

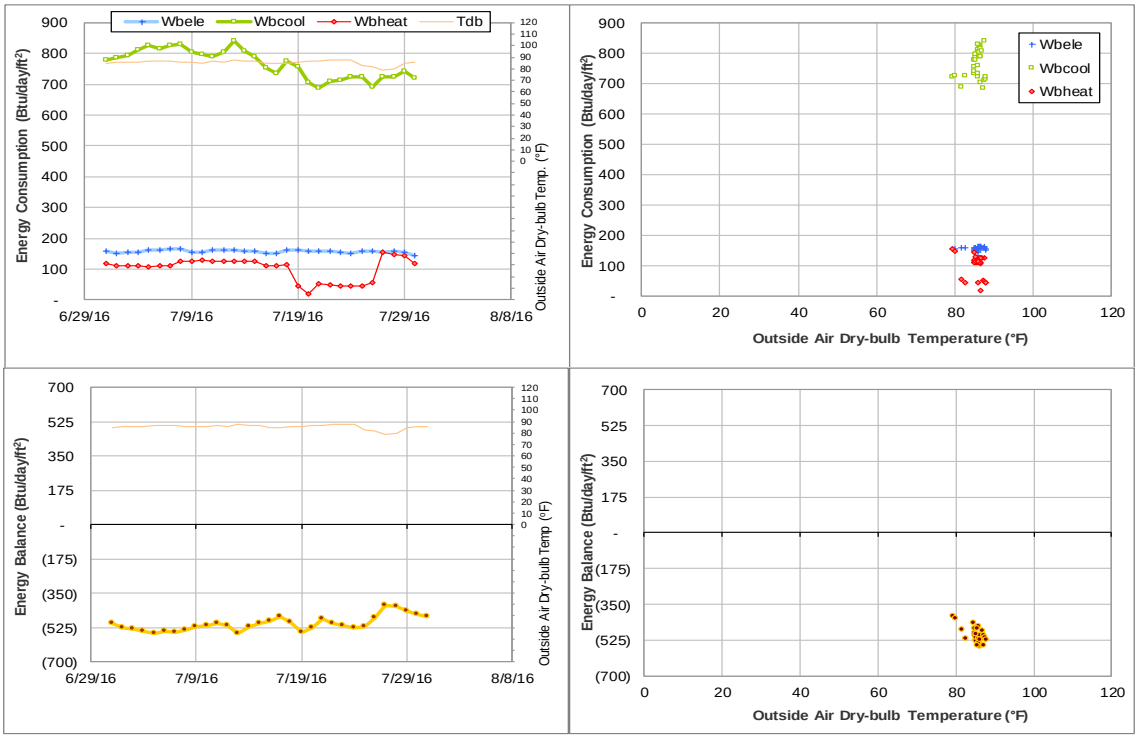


Figure IV-94 Halbouty Geosciences Building TAMU BLDG # 490 Energy Balance Plot during July 2016

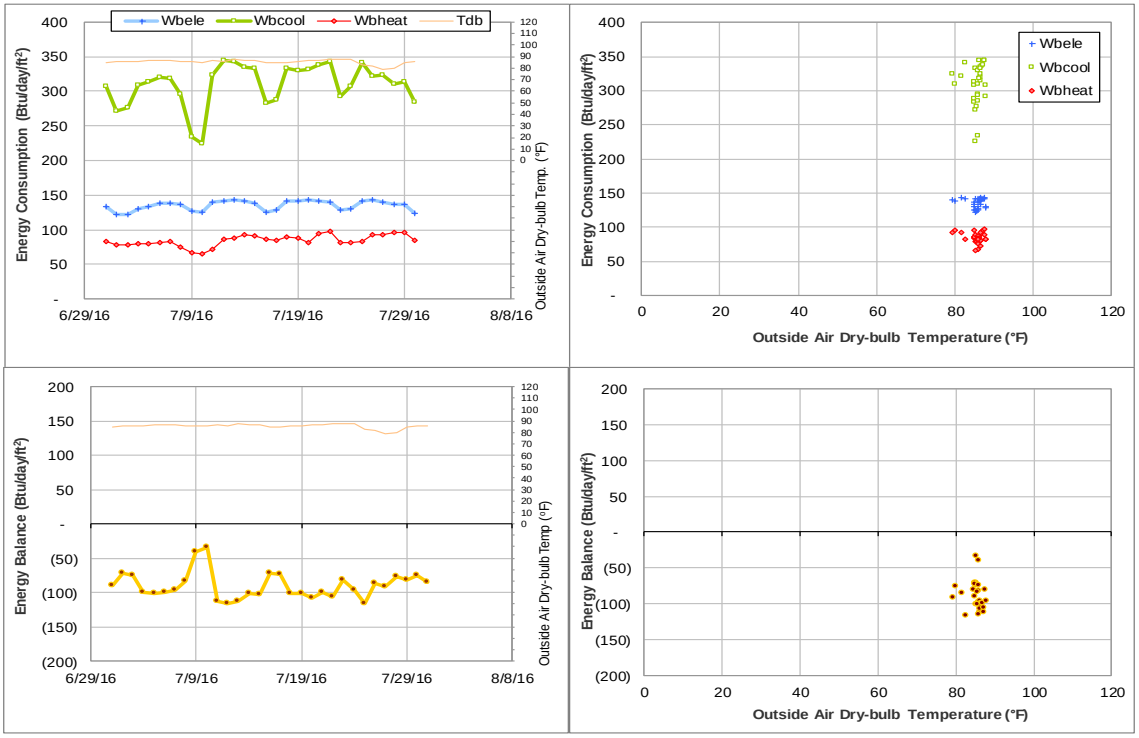


Figure IV-95 Civil Engineering Building TAMU BLDG # 492 Energy Balance Plot during July 2016

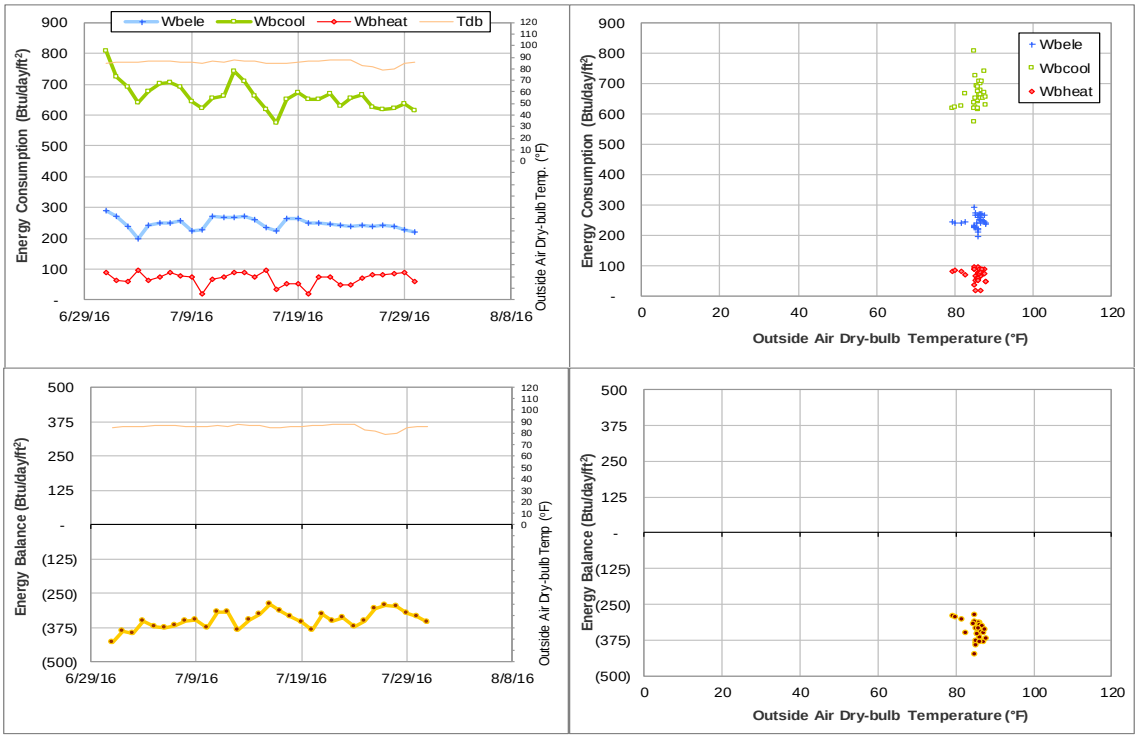


Figure IV-96 Sbisa Dining Hall TAMU BLDG # 495 Energy Balance Plot during July 2016

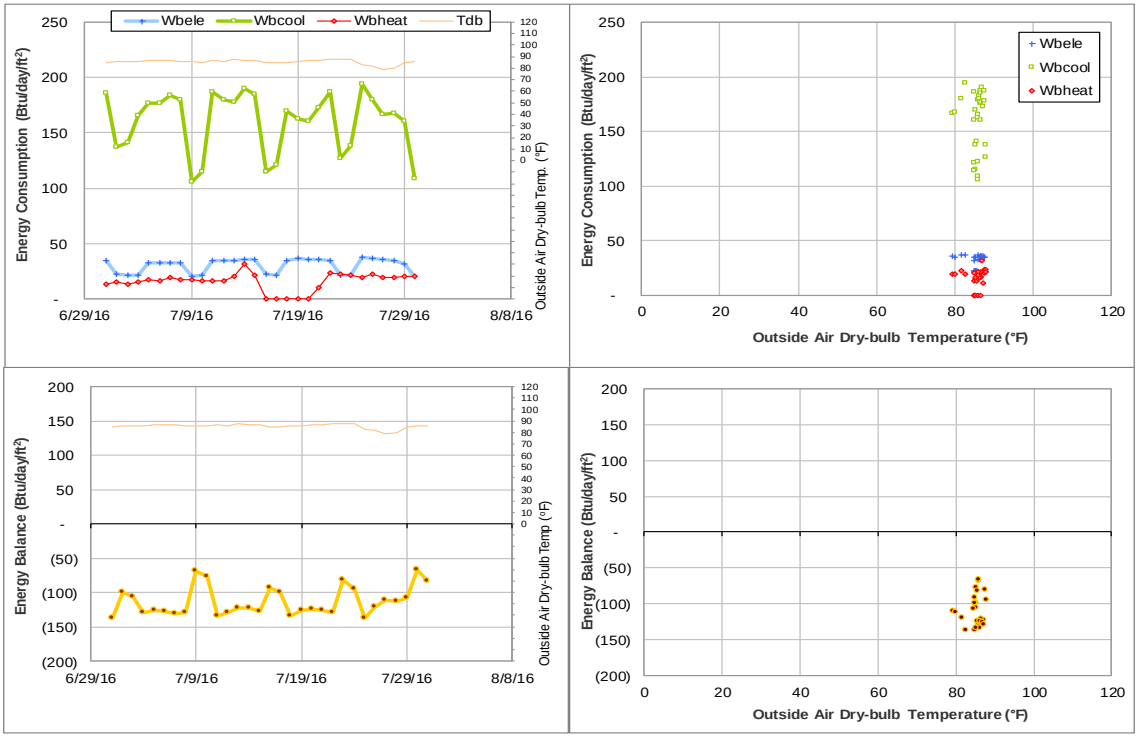


Figure IV-97 Utilities & Energy Services Central Office TAMU BLDG # 496 Energy Balance Plot during July 2016

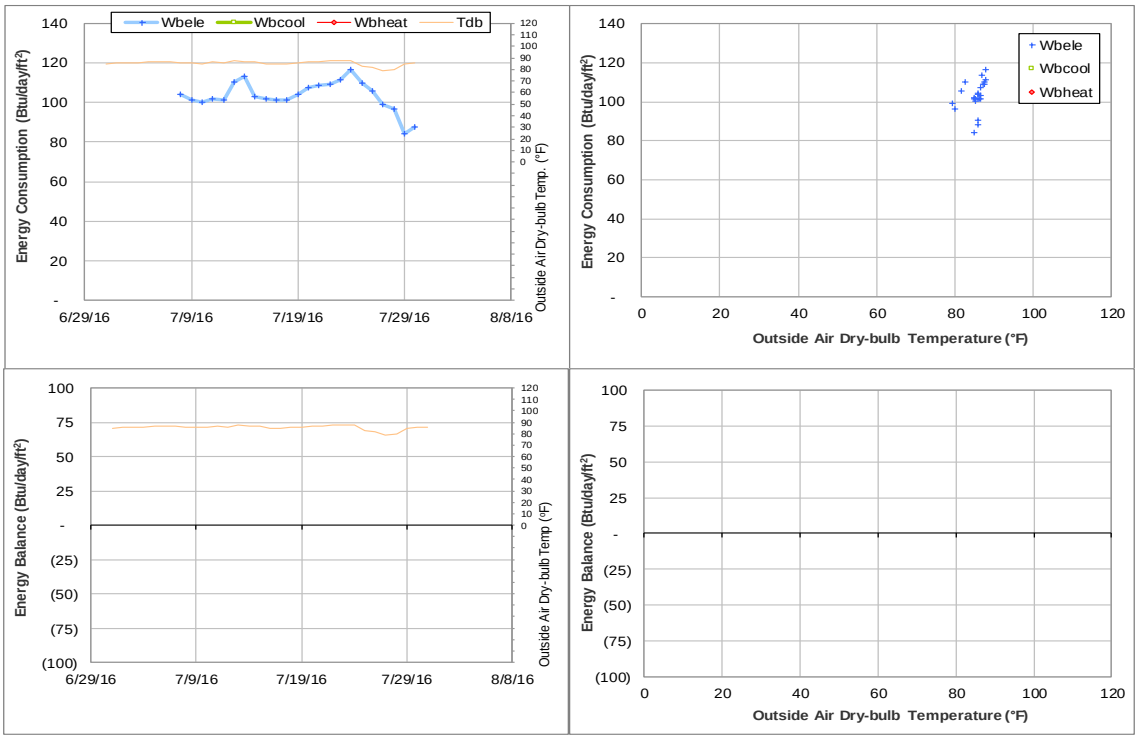


Figure IV-98 Concrete Materials Laboratory TAMU BLDG # 501 Energy Balance Plot during July 2016

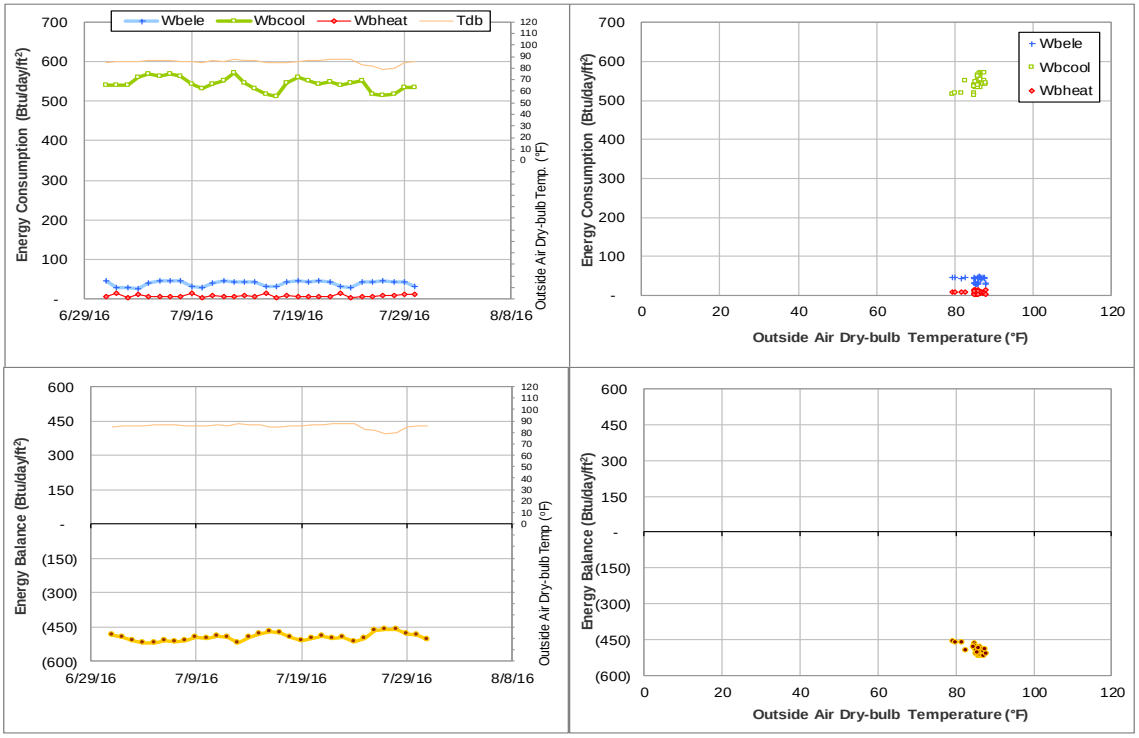


Figure IV-99 Nagle Hall TAMU BLDG # 506 Energy Balance Plot during July 2016

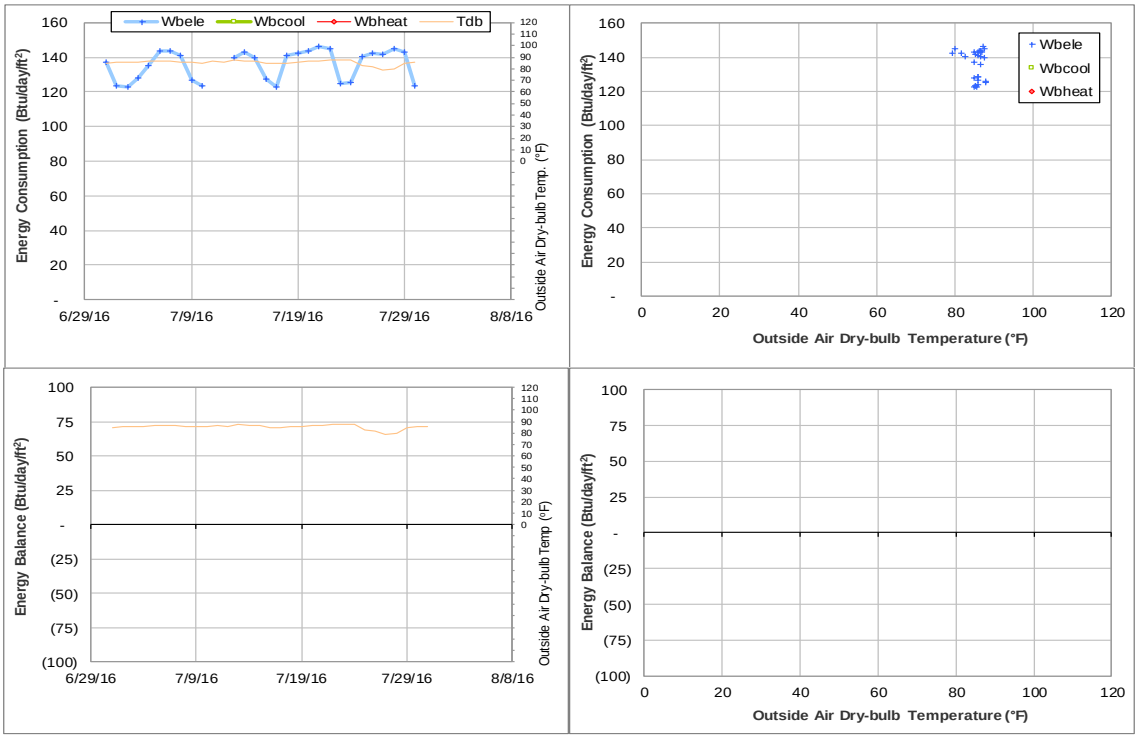


Figure IV-100 Veterinary Medical Science Building TAMU BLDG # 507 Energy Balance Plot during July 2016

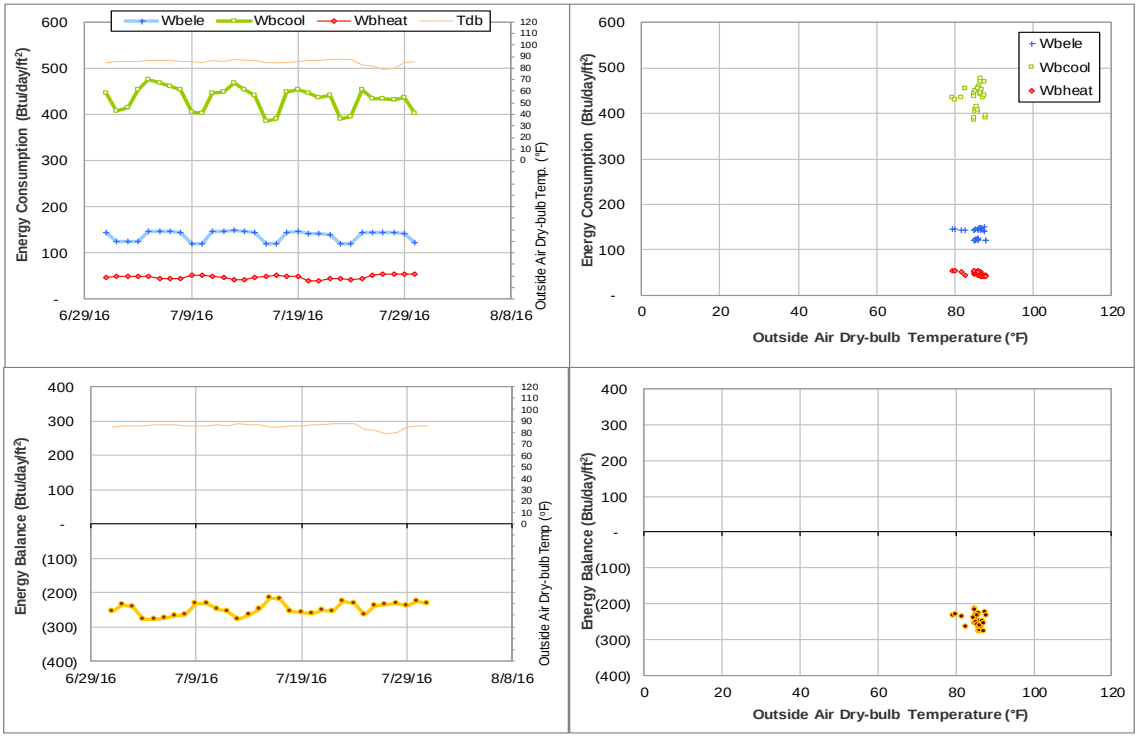


Figure IV-101 Veterinary Teaching Hospital and Med Adm TAMU BLDG # 508 and 1026 Energy Balance Plot during July 2016

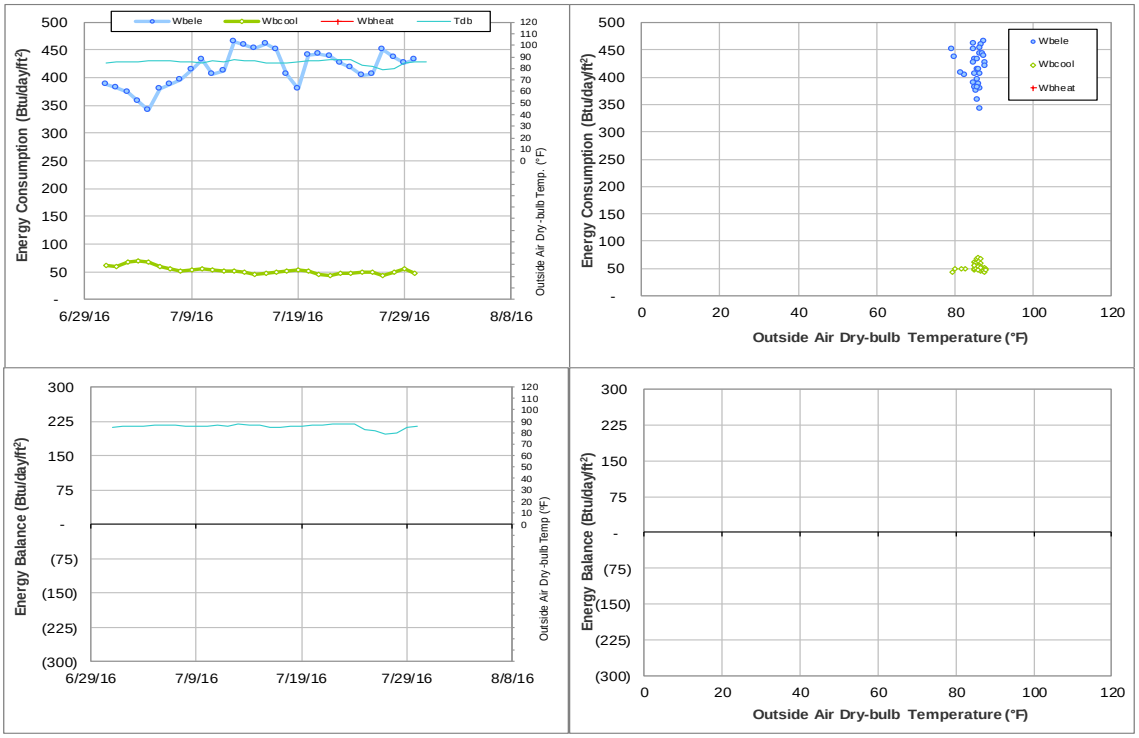


Figure IV-102 Veterinary Teaching Hospital TAMU BLDG # 508 Energy Balance Plot during July 2016

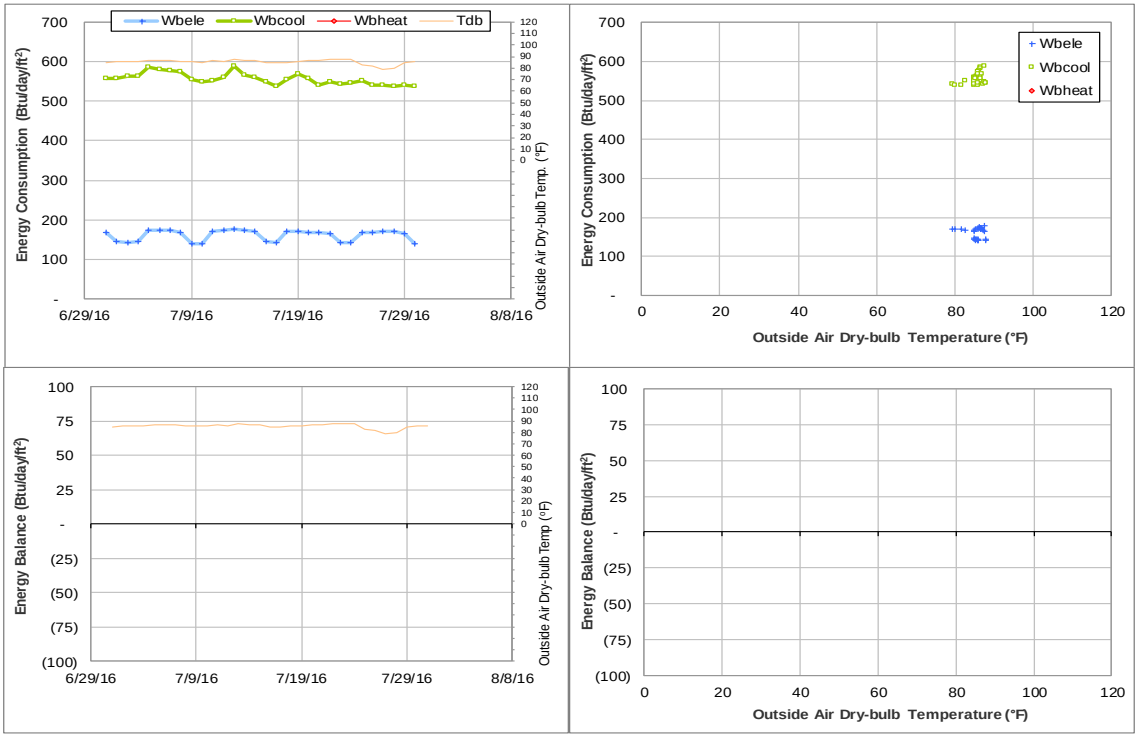


Figure IV-103 Veterinary Medicine Administration TAMU BLDG # 1026 Energy Balance Plot during July 2016

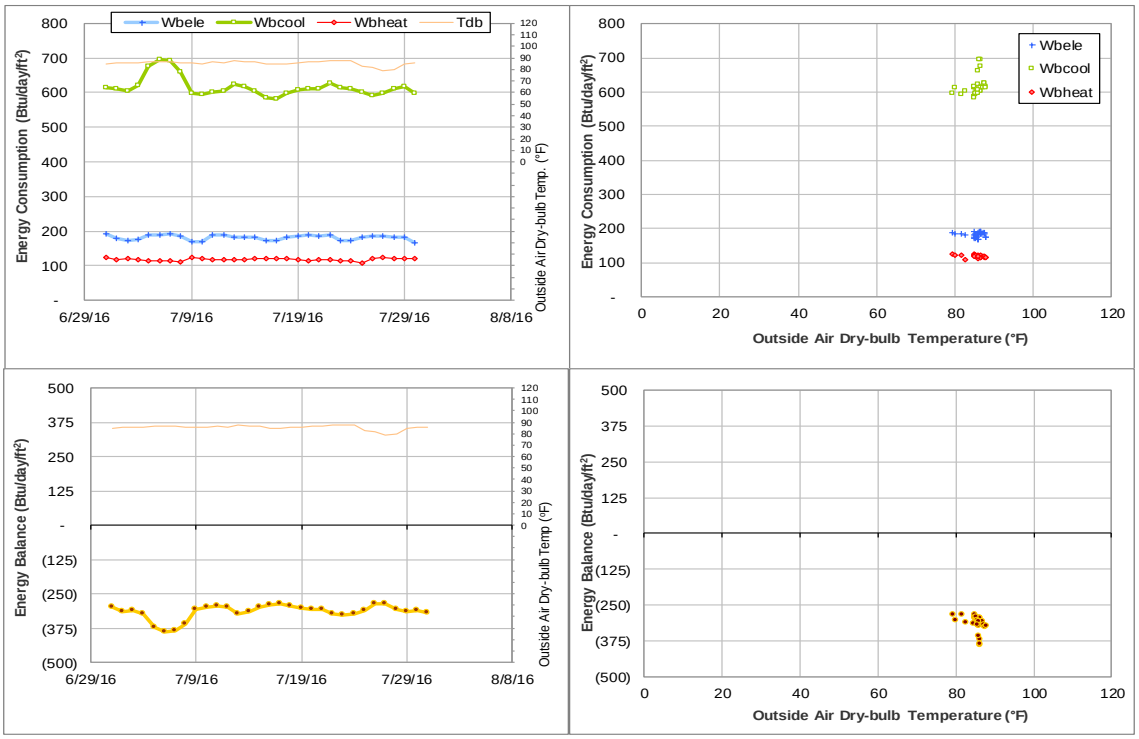


Figure IV-104 Heep Laboratory Building TAMU BLDG # 511 Energy Balance Plot during July 2016

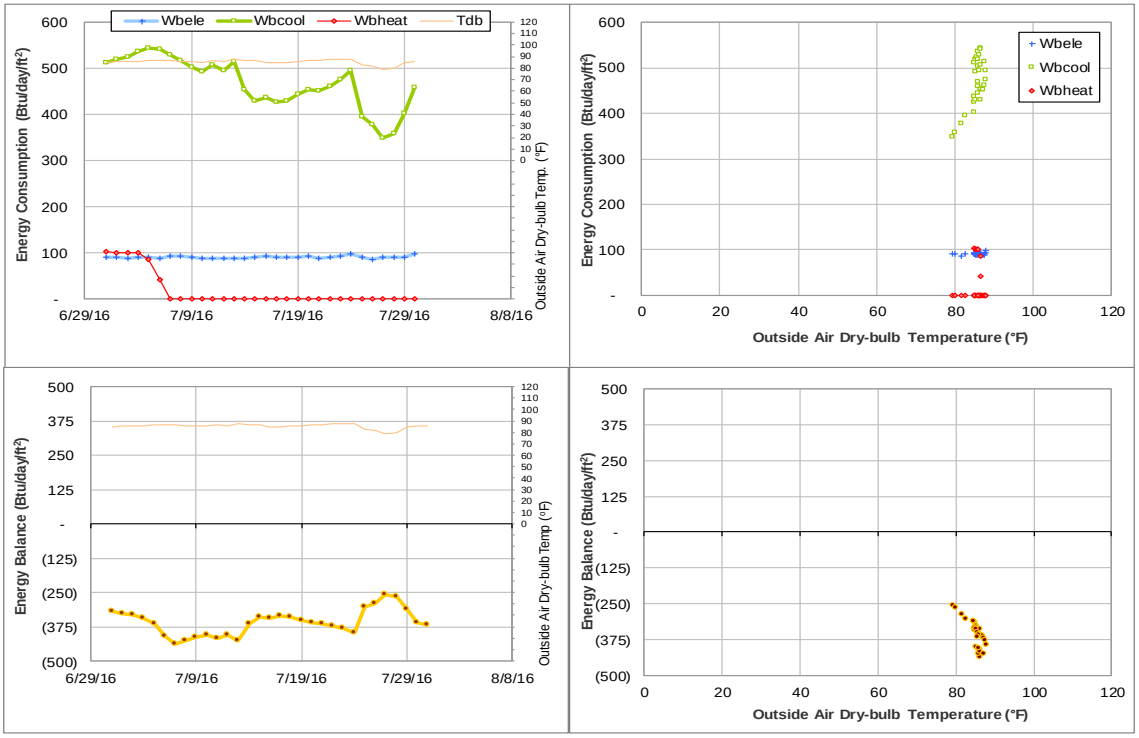


Figure IV-105 All Faiths Chapel TAMU BLDG # 512 Energy Balance Plot during July 2016

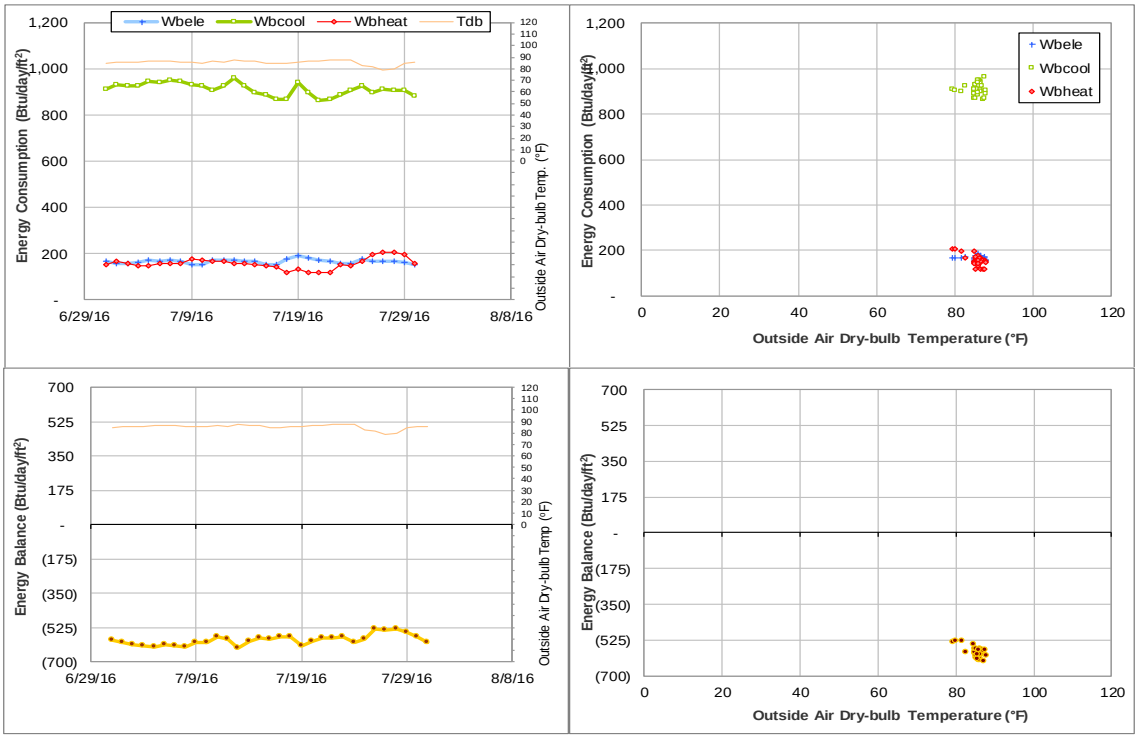


Figure IV-106 Doherty Building TAMU BLDG # 513 Energy Balance Plot during July 2016

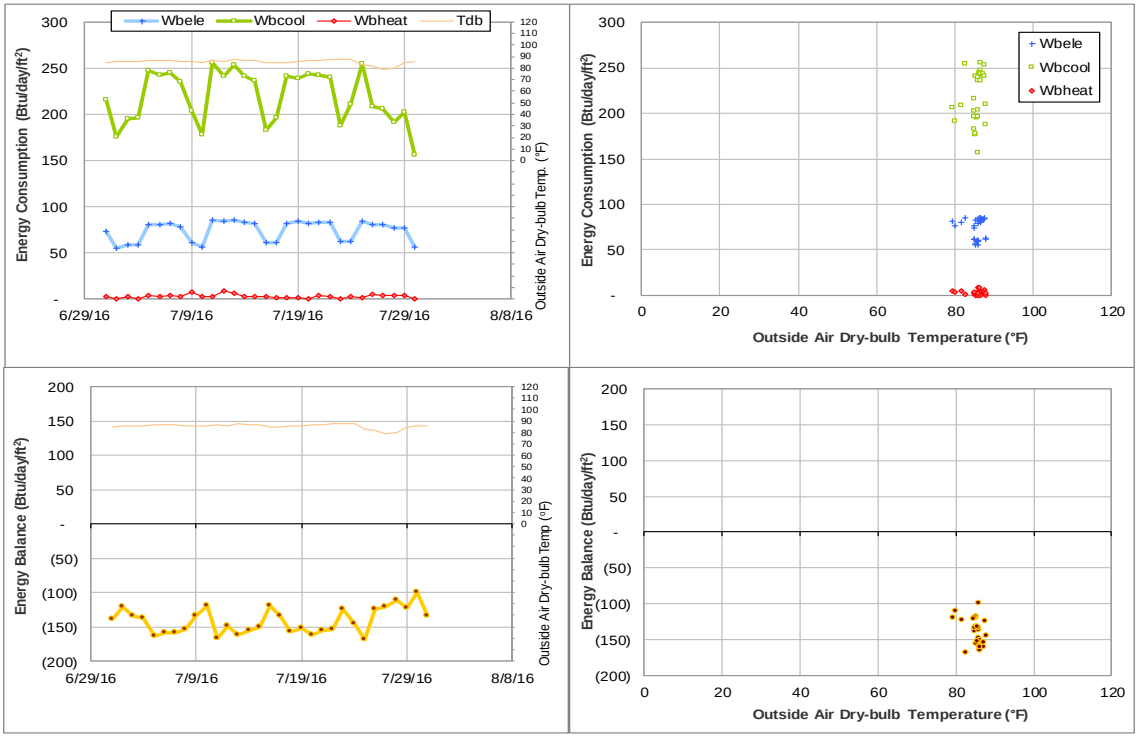


Figure IV-107 Munnerlyn Astronomy & Space Sciences Engineering TAMU BLDG # 514 Energy Balance Plot during July 2016

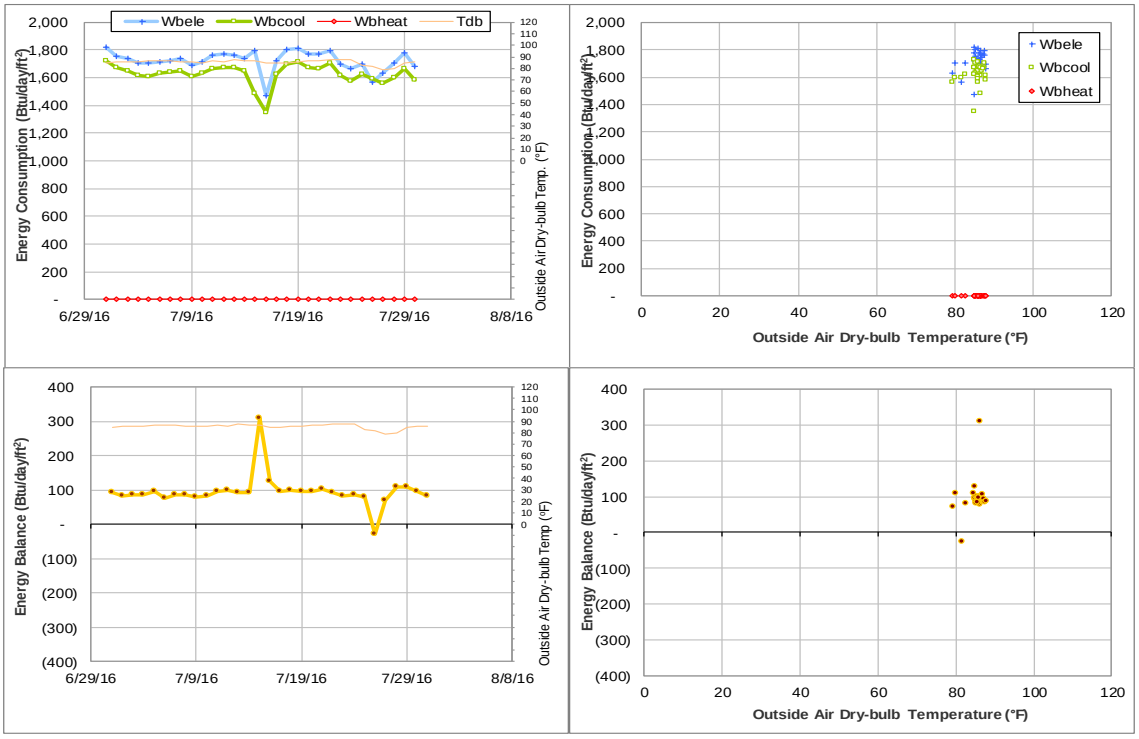


Figure IV-108 Computing Services Center TAMU BLDG # 516 Energy Balance Plot during July 2016

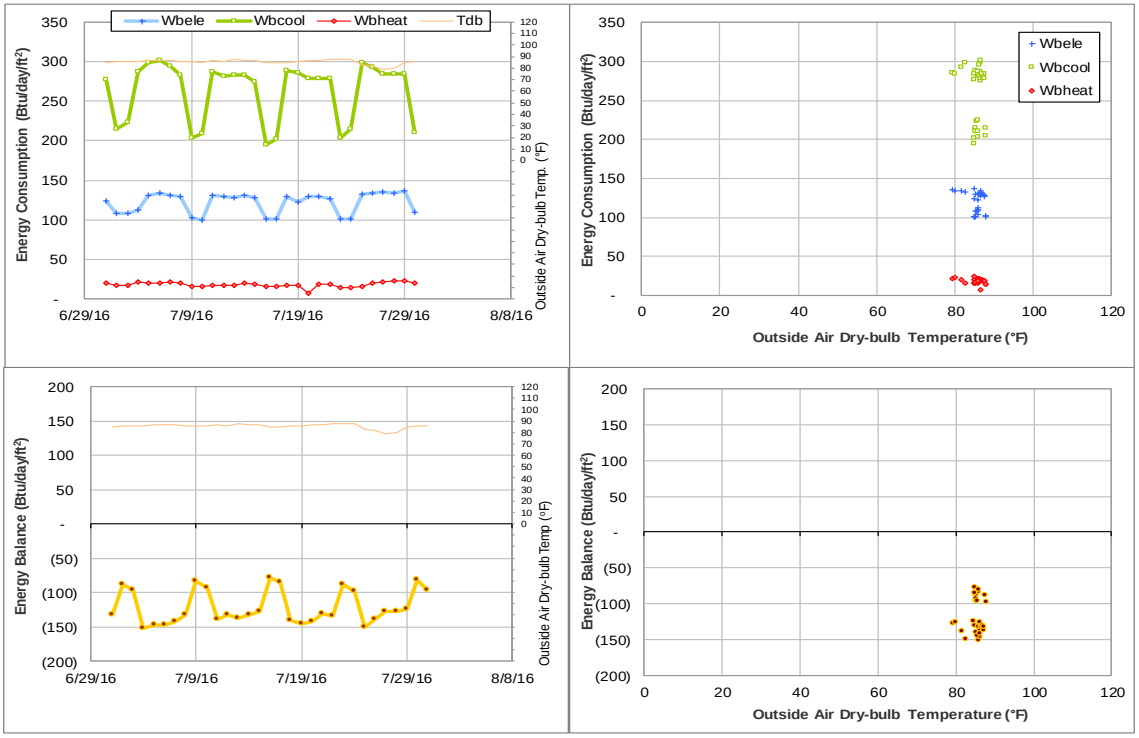


Figure IV-109 Beutel Health Center TAMU BLDG # 520 Energy Balance Plot during July 2016

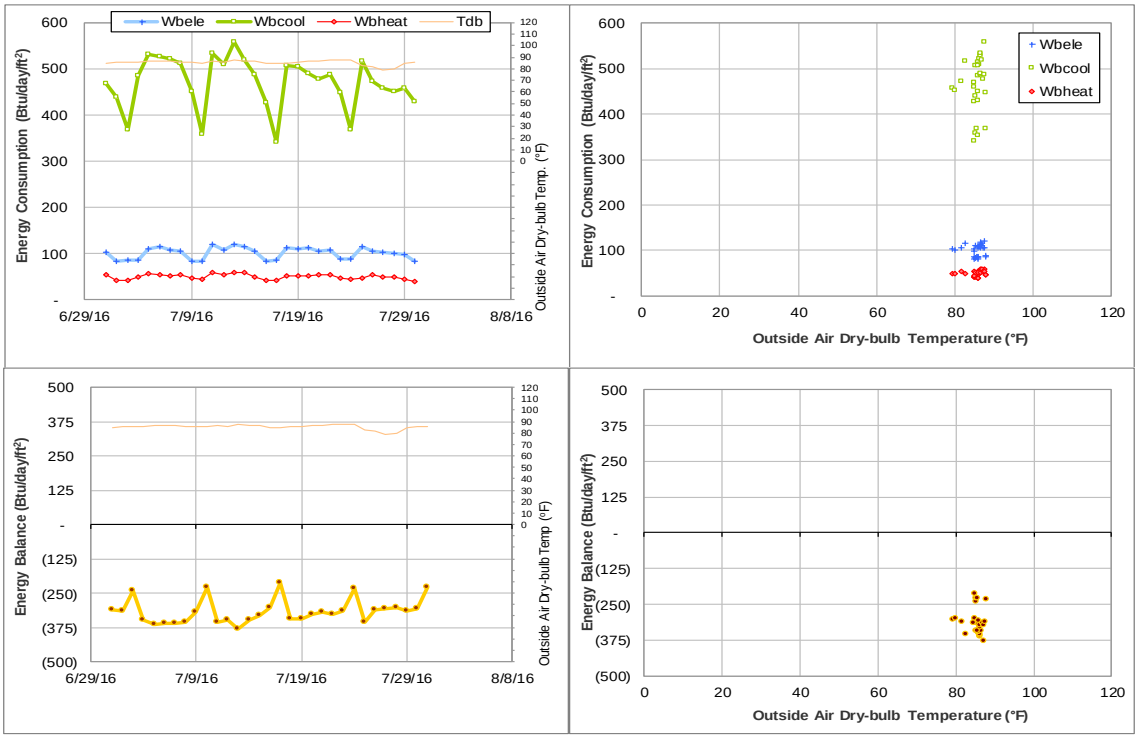


Figure IV-110 Heldenfels Hall TAMU BLDG # 521 Energy Balance Plot during July 2016

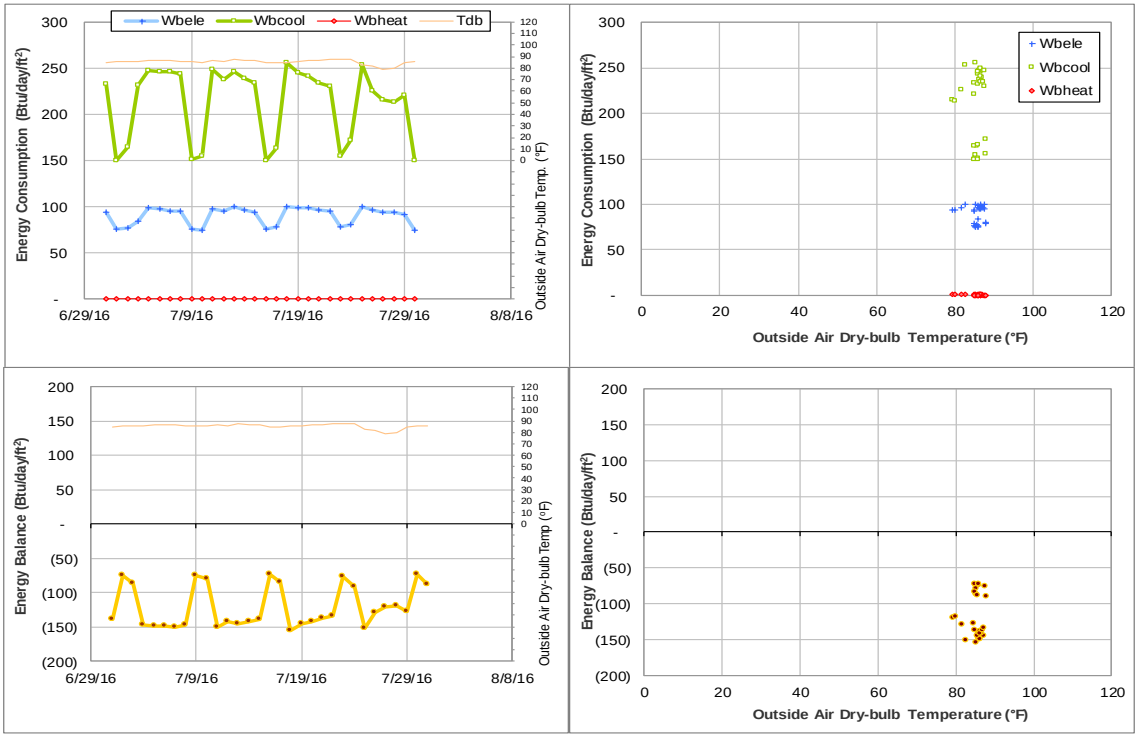


Figure IV-111 Blocker building TAMU BLDG # 524 Energy Balance Plot during July 2016

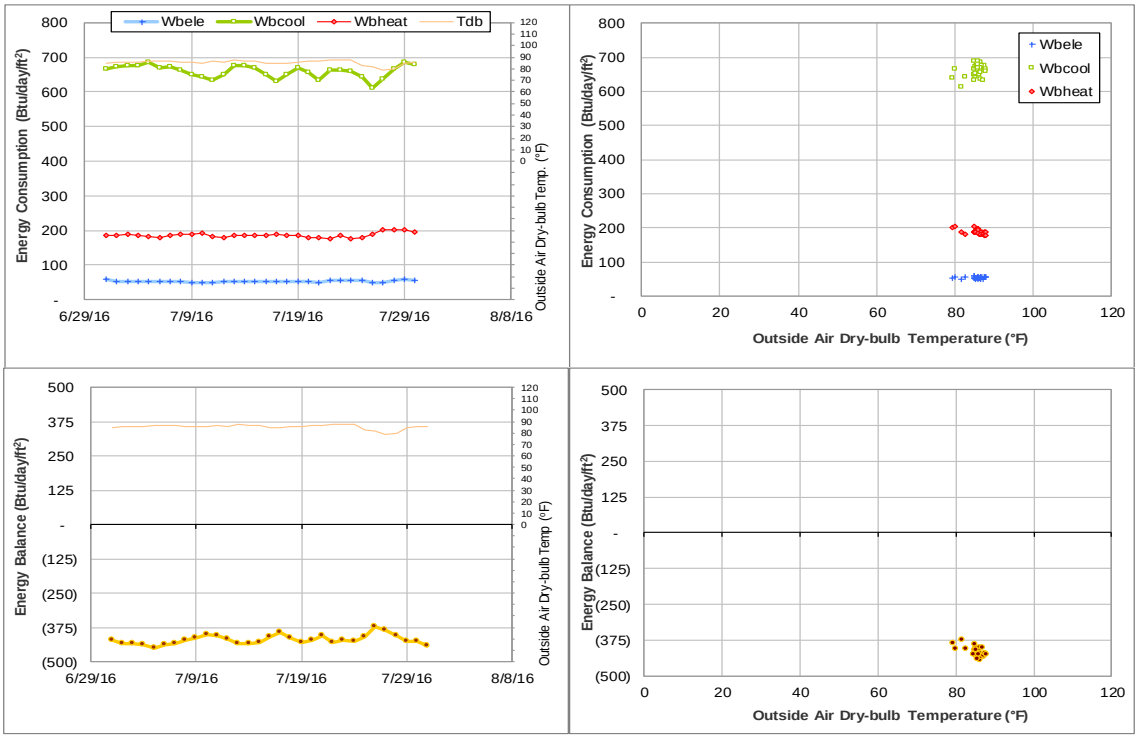


Figure IV-112 Clements Residence Hall TAMU BLDG # 548 Energy Balance Plot during July 2016

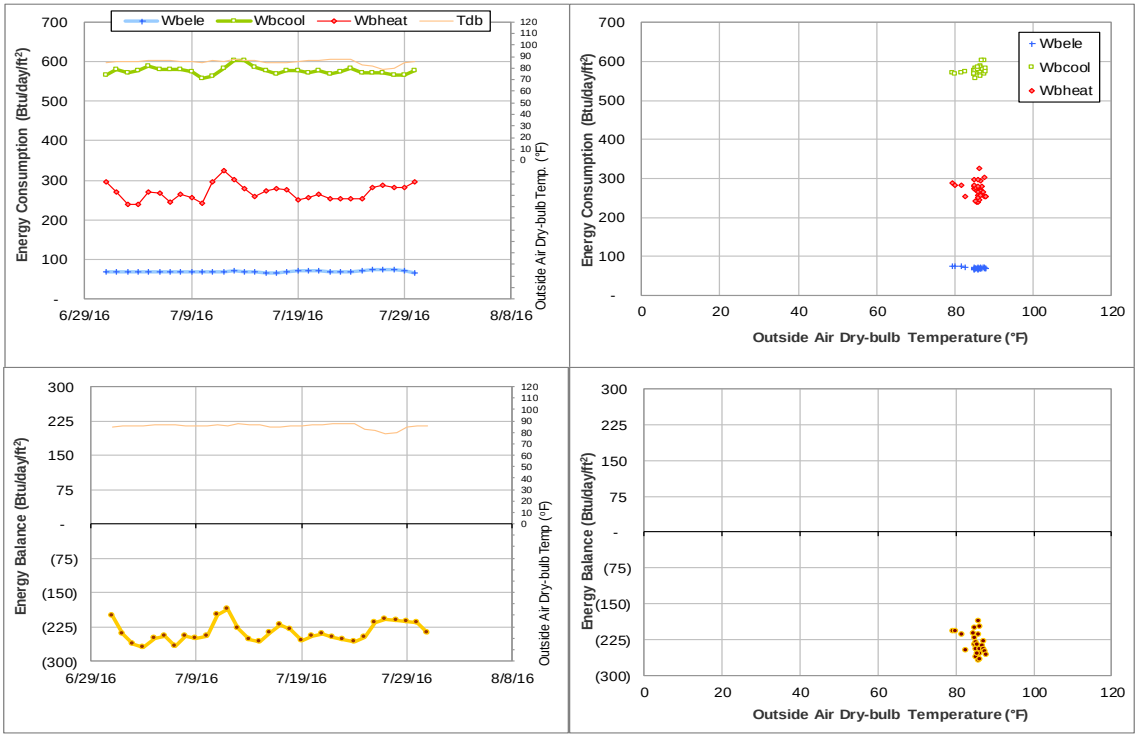


Figure IV-113 Haas Residence Hall TAMU BLDG # 549 Energy Balance Plot during July 2016

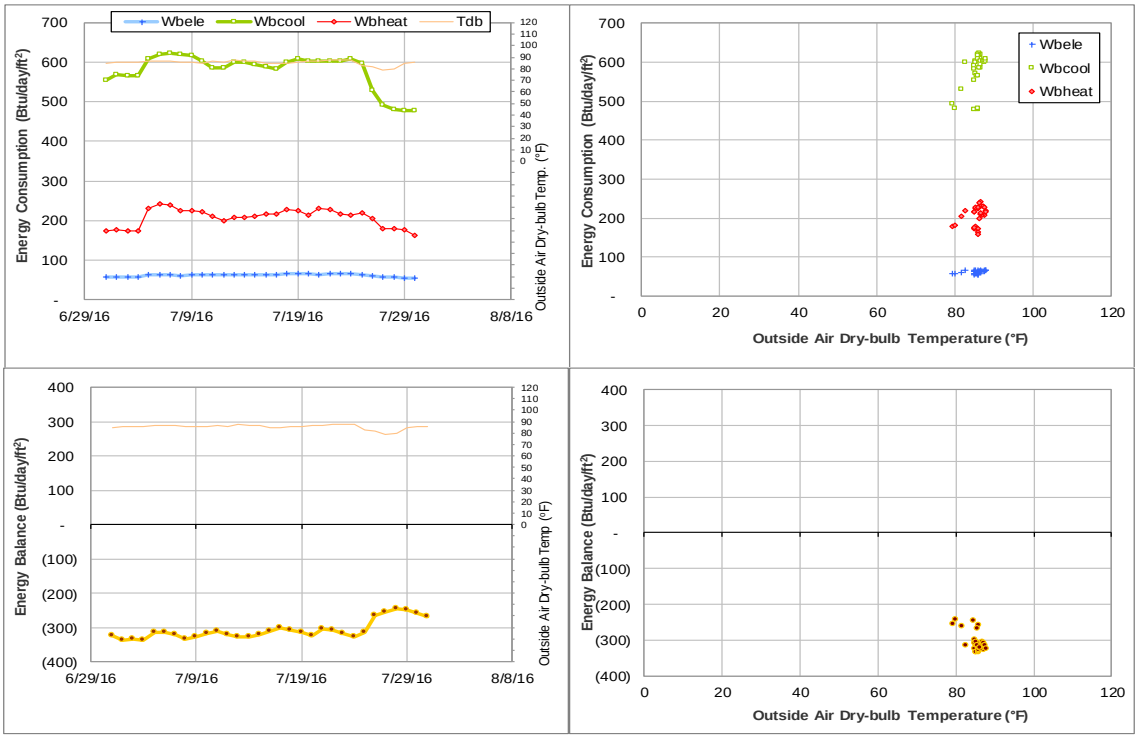


Figure IV-114 McFadden Residence Hall TAMU BLDG # 550 Energy Balance Plot during July 2016

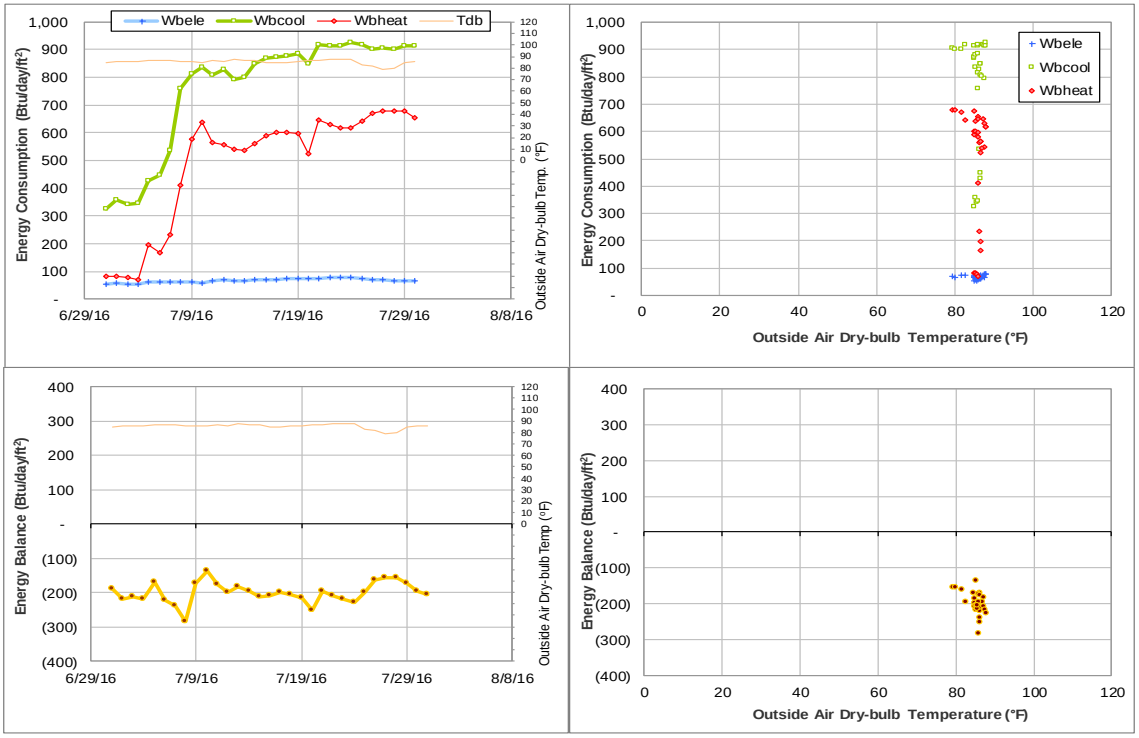


Figure IV-115 Neeley Residence Hall TAMU BLDG # 652 Energy Balance Plot during July 2016

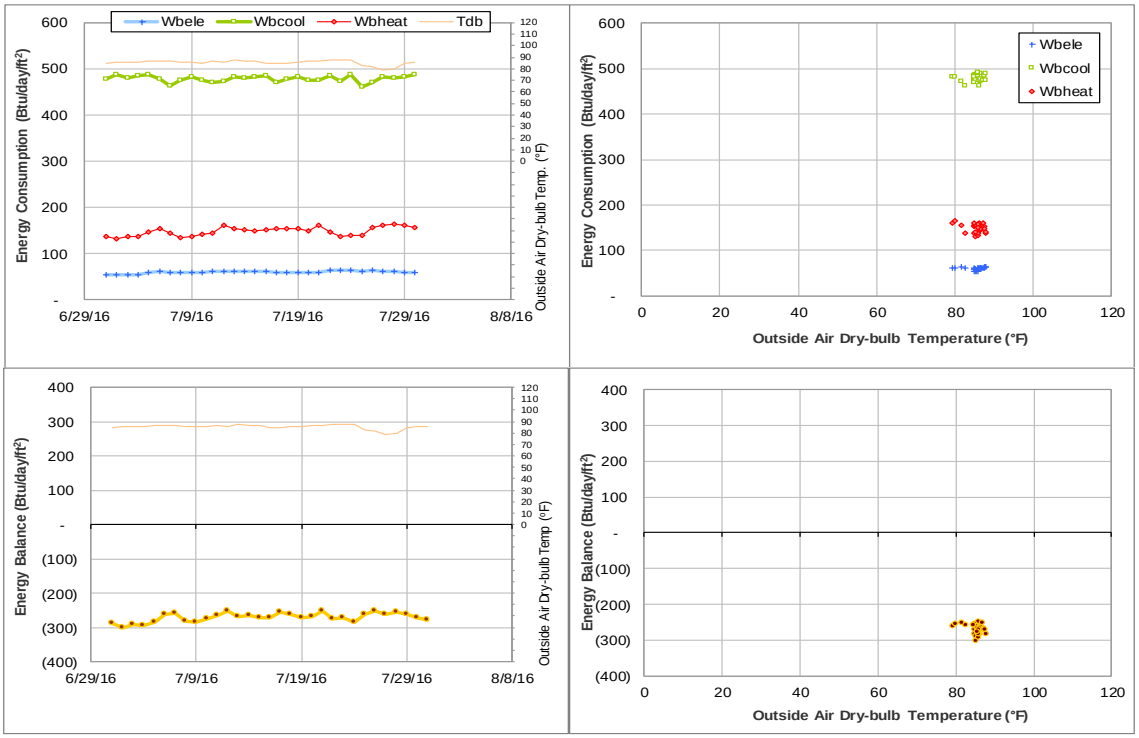


Figure IV-116 Hobby Residence Hall TAMU BLDG # 653 Energy Balance Plot during July 2016

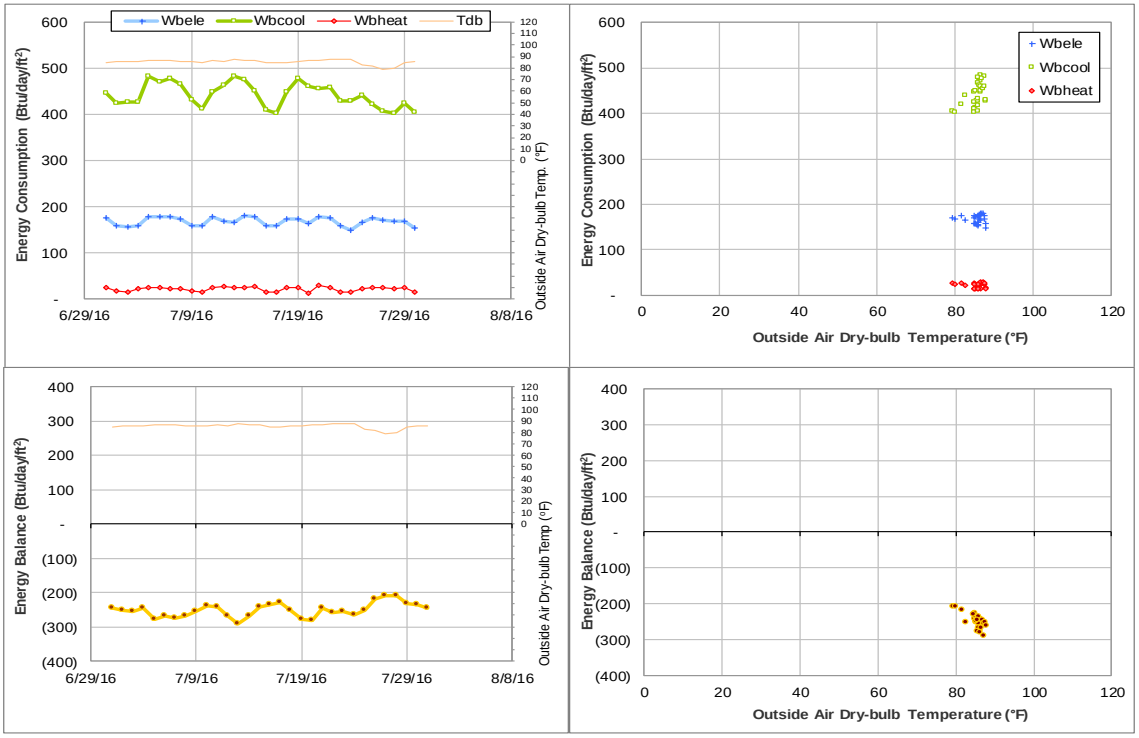


Figure IV-117 Wisenbaker Engineering Research Center TAMU BLDG # 682 Energy Balance Plot during July 2016

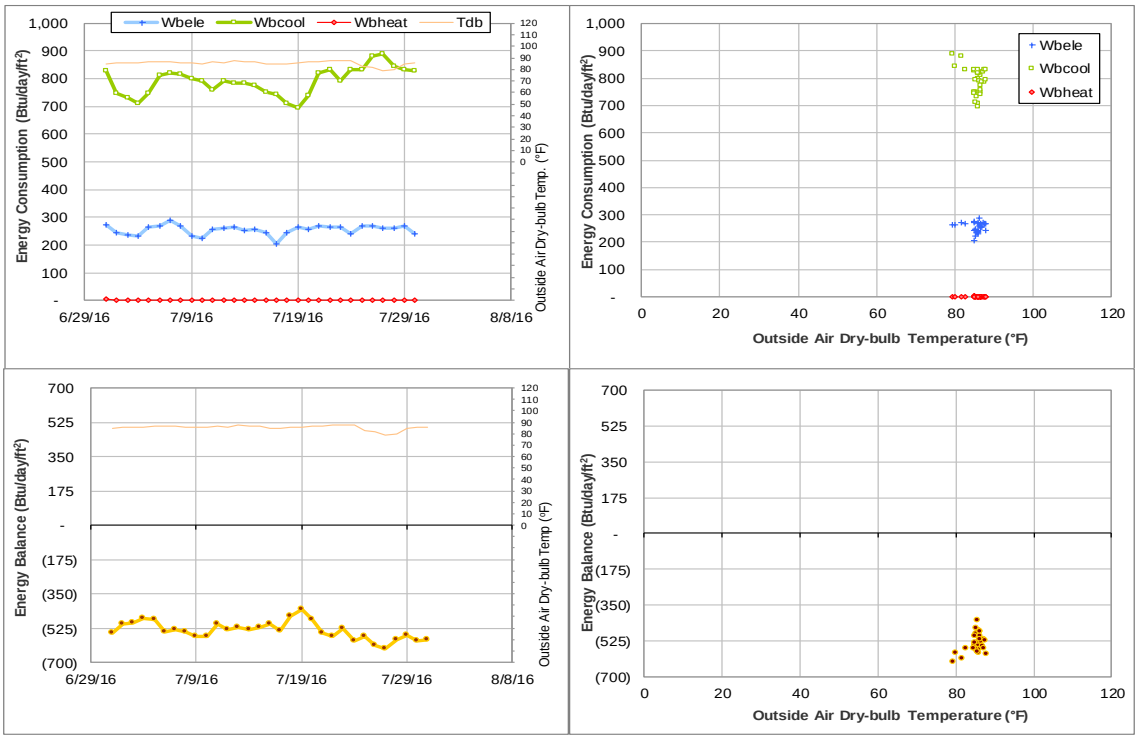


Figure IV-118 McNew Laboratory TAMU BLDG # 740 Energy Balance Plot during July 2016

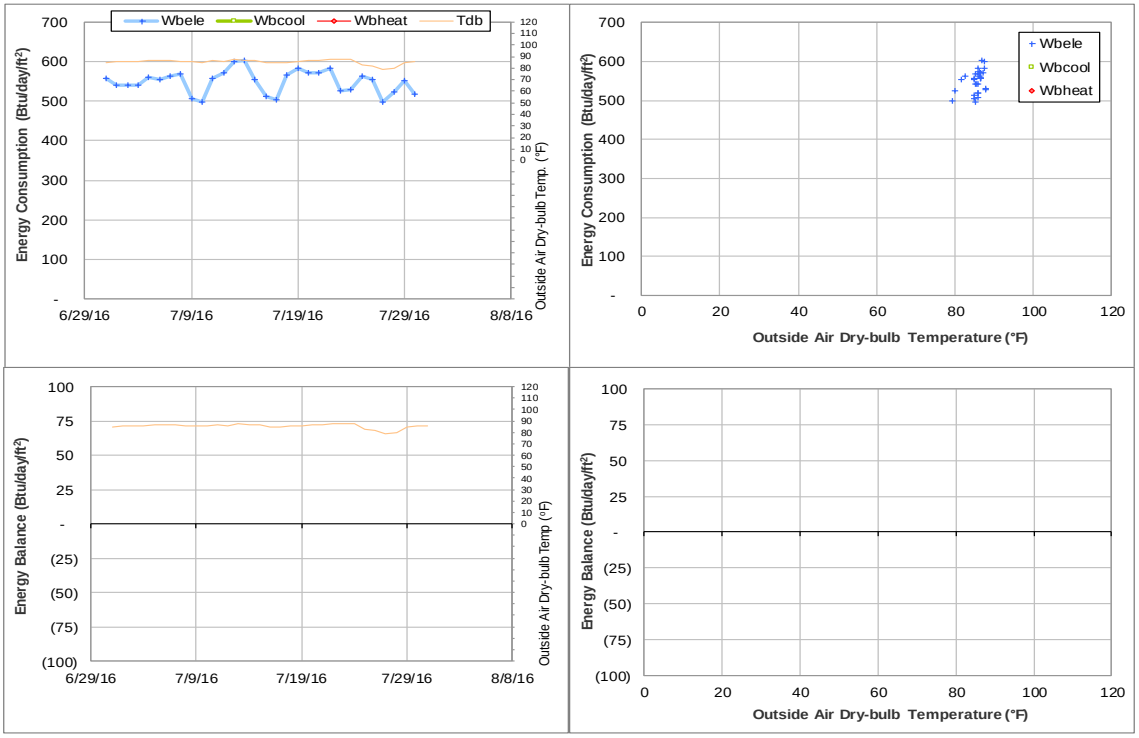


Figure IV-119 Soil Testing Labs TAMU BLDG # 806 Energy Balance Plot during July 2016

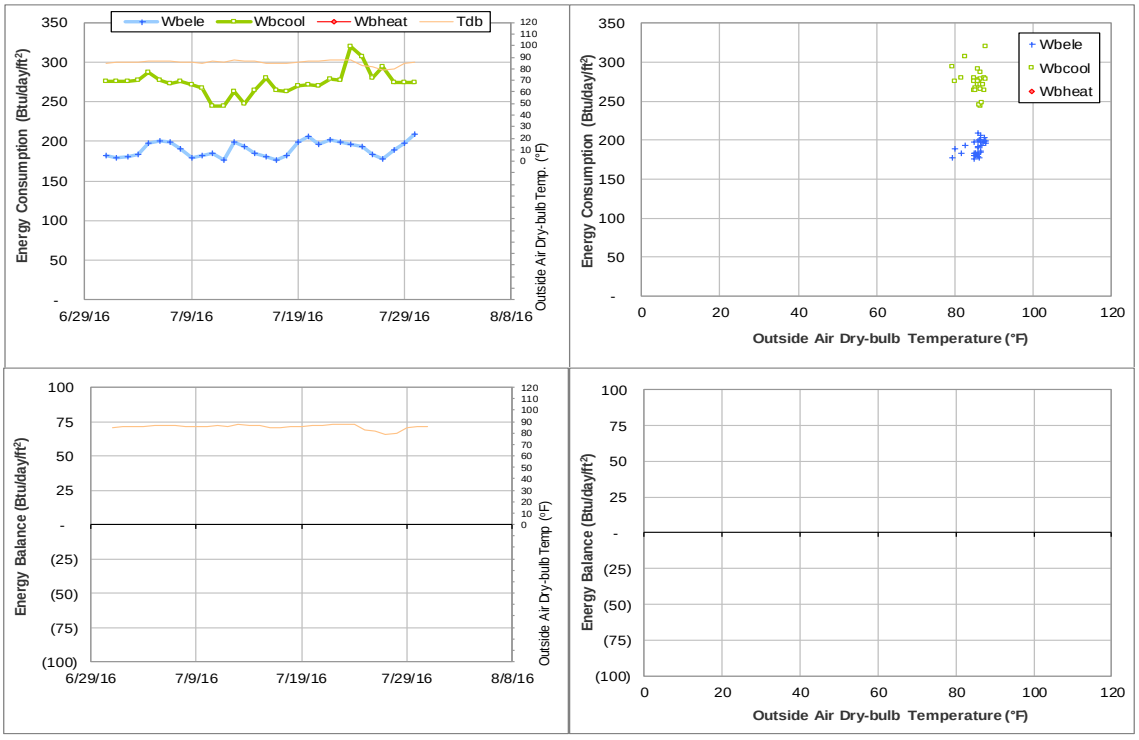


Figure IV-120 Entomology Research Lab TAMU BLDG # 815 Energy Balance Plot during July 2016

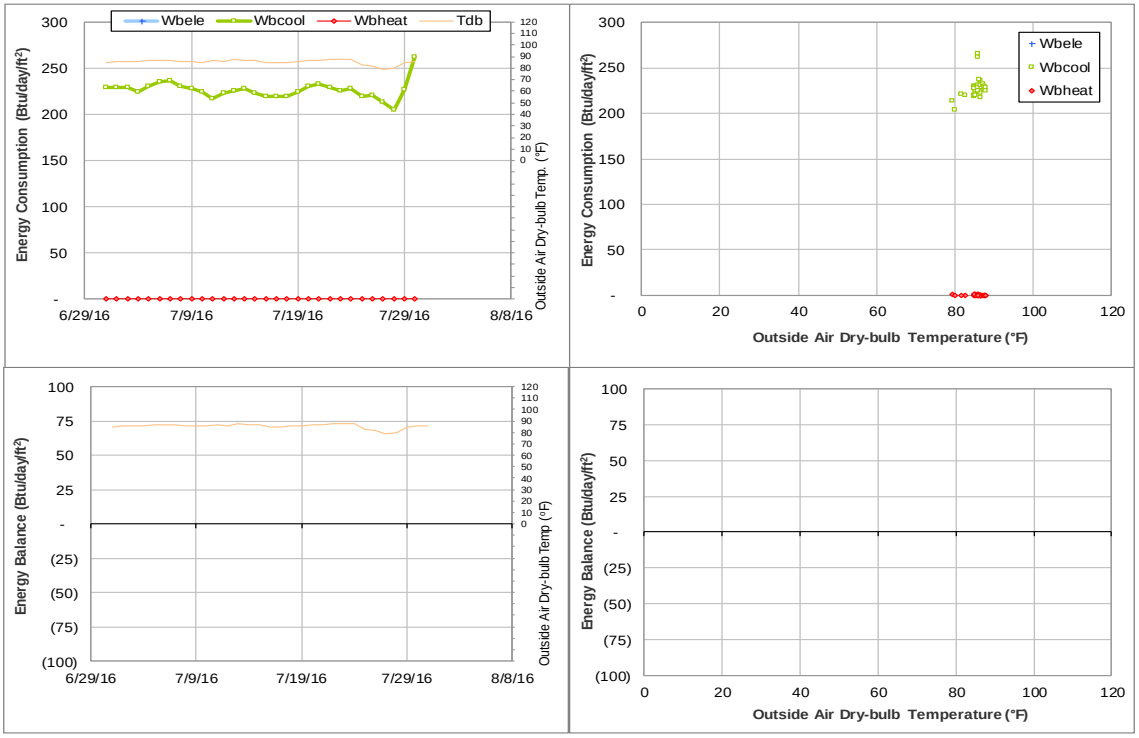


Figure IV-121 TVMC-Small Animal Building TAMU BLDG # 880 Energy Balance Plot during July 2016

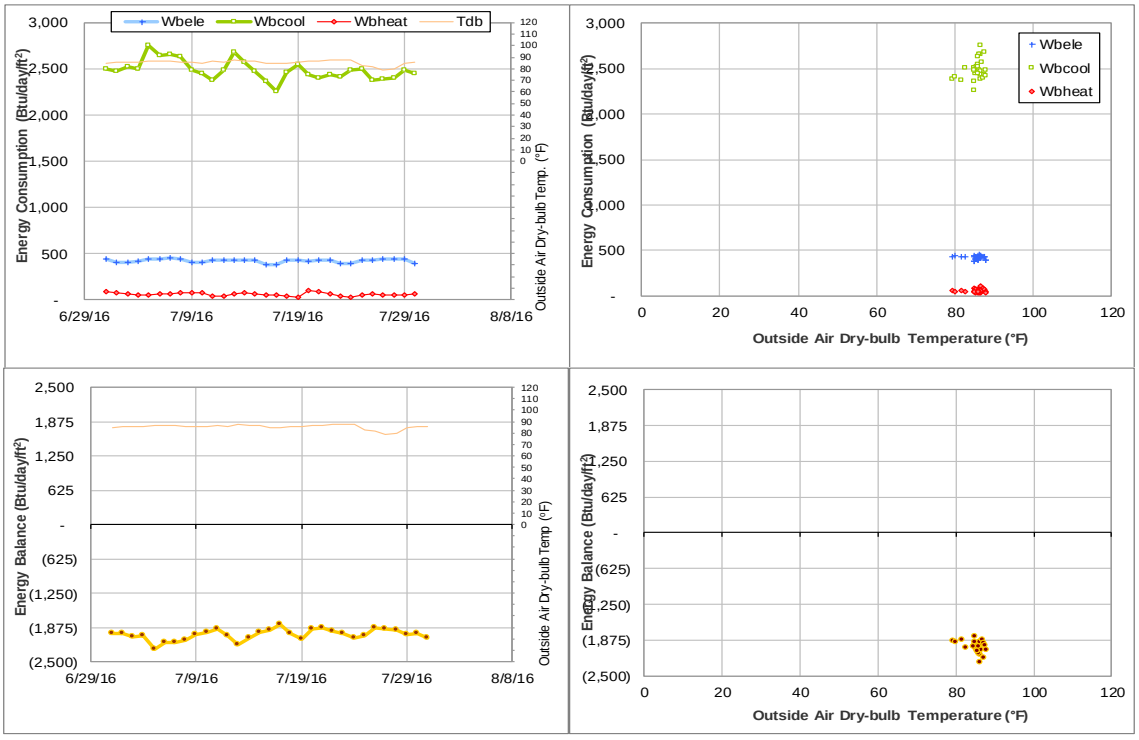


Figure IV-122 Laboratory Animal Care Building TAMU BLDG # 972 Energy Balance Plot during July 2016

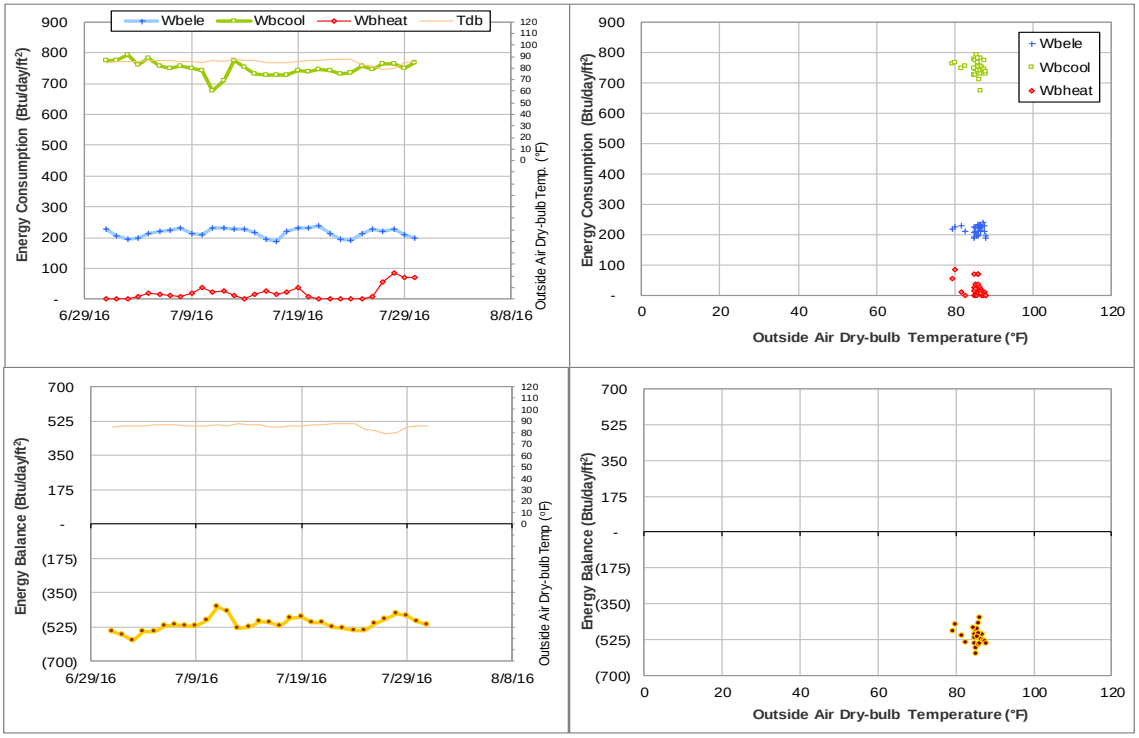


Figure IV-123 Vivarium III TAMU BLDG # 1020 Energy Balance Plot during July 2016

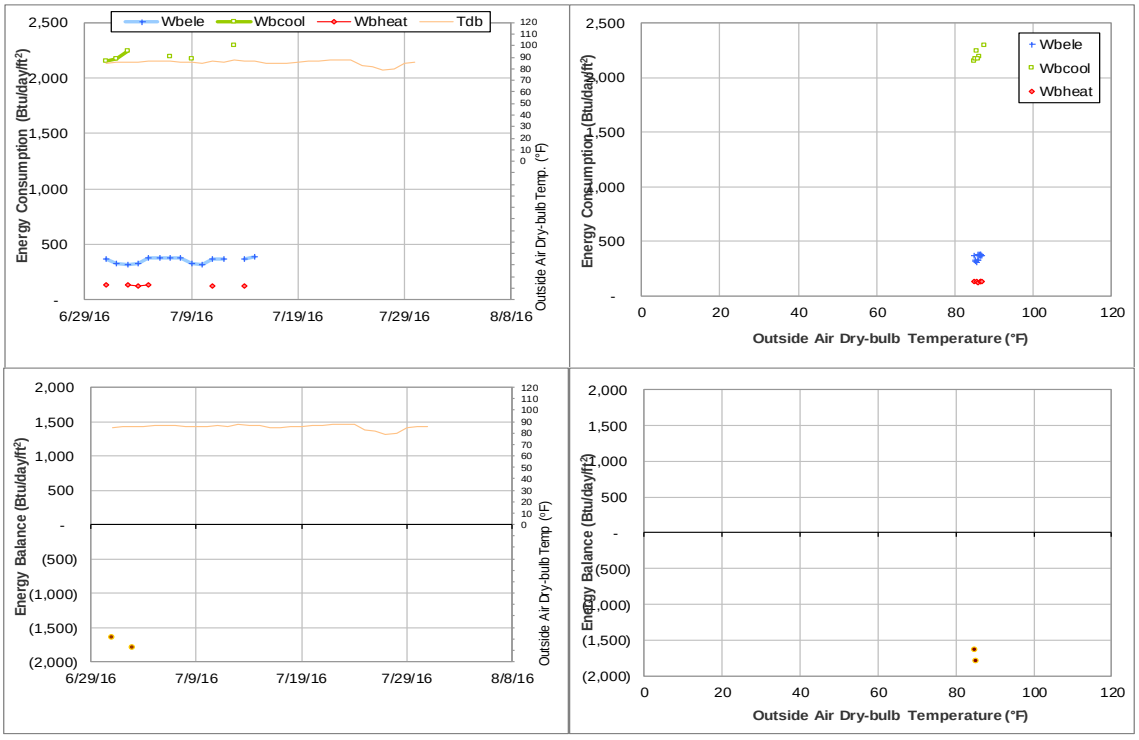


Figure IV-124 Texas Vet Med Diagnostic Lab TAMU BLDG # 1041 Energy Balance Plot during July 2016

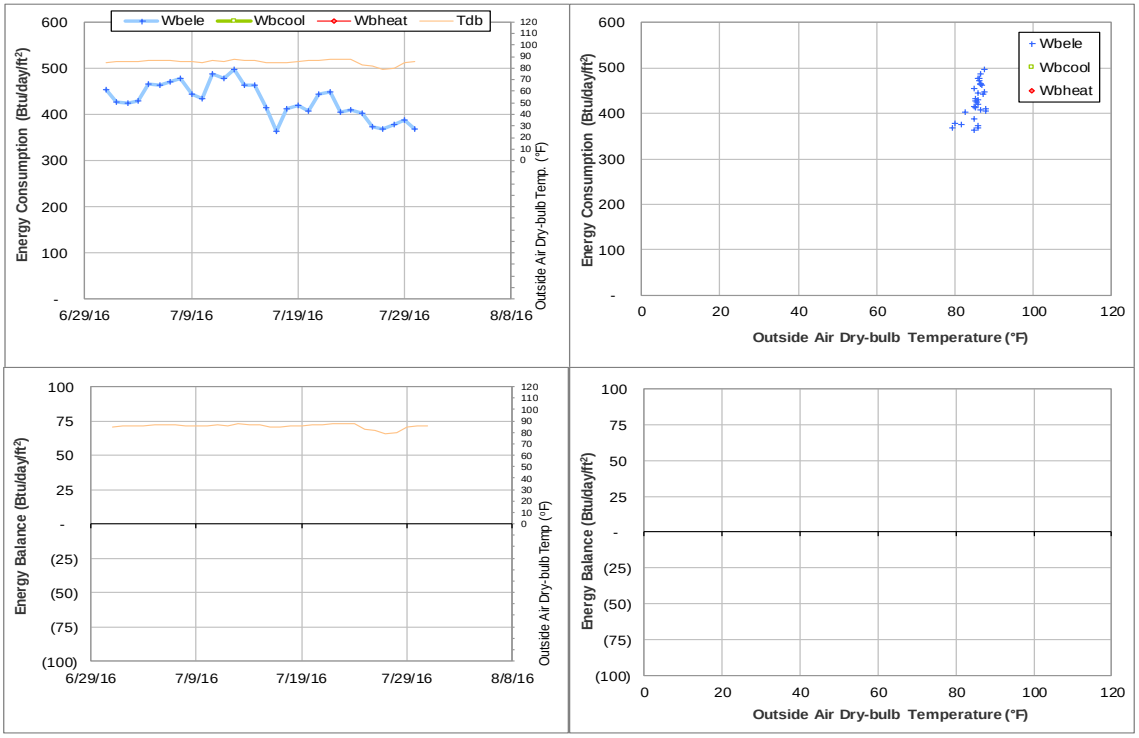


Figure IV-125 Forest Science Laboratory Building TAMU BLDG # 1042 Energy Balance Plot during July 2016

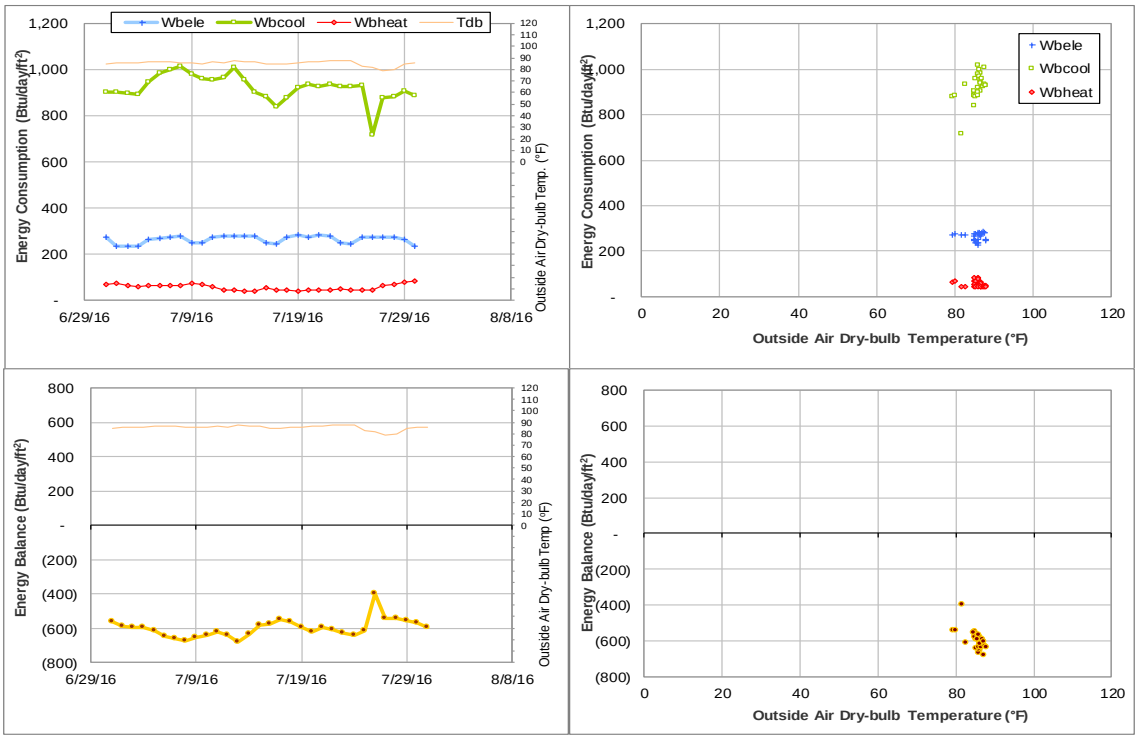


Figure IV-126 Veterinary Small Animal Hospital TAMU BLDG # 1085 Energy Balance Plot during July 2016

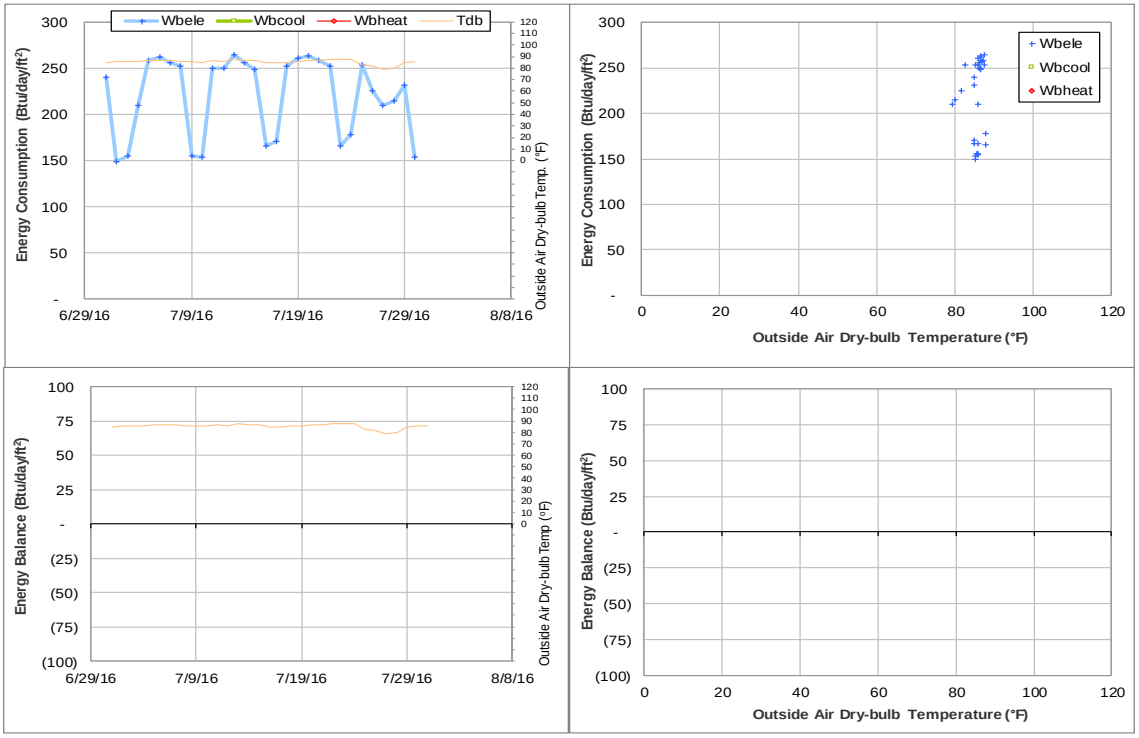


Figure IV-127 Utilities Energy Office Annex TAMU BLDG # 1089 Energy Balance Plot during July 2016

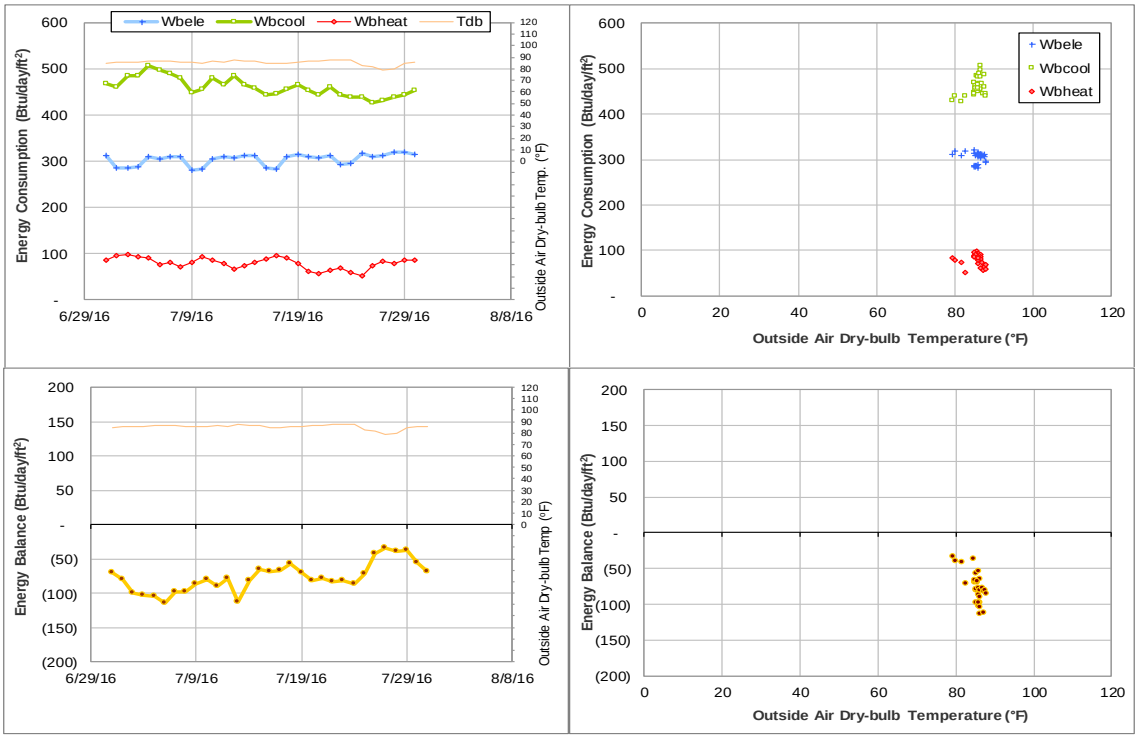


Figure IV-128 Biological Control Facility TAMU BLDG # 1146 Energy Balance Plot during July 2016

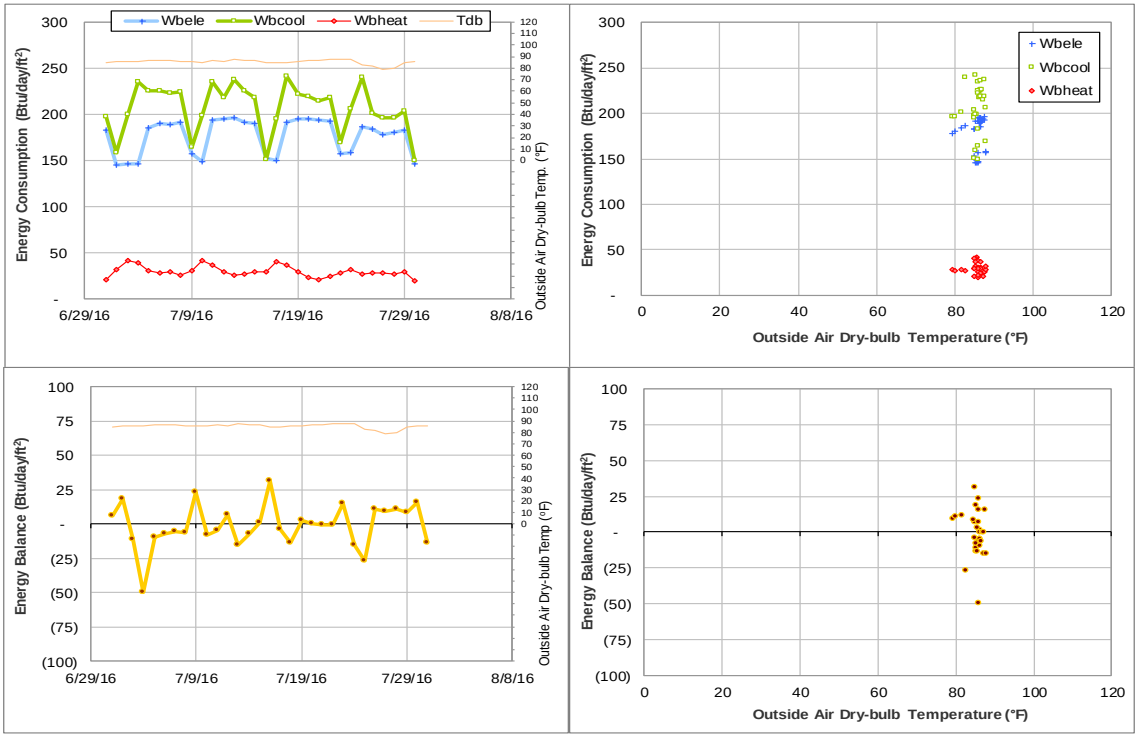


Figure IV-129 Physical Plant Administration & Shops TAMU BLDG # 1156 Energy Balance Plot during July 2016

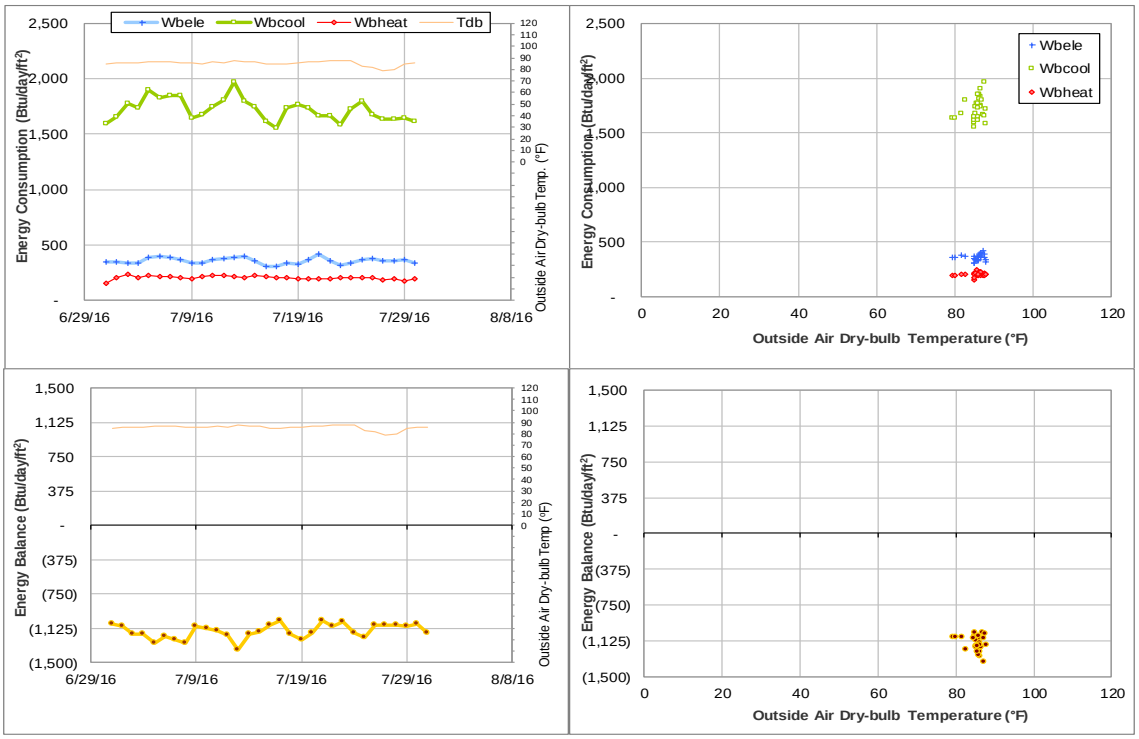


Figure IV-130 Veterinary Anatomic Pathology TAMU BLDG # 1184 Energy Balance Plot during July 2016

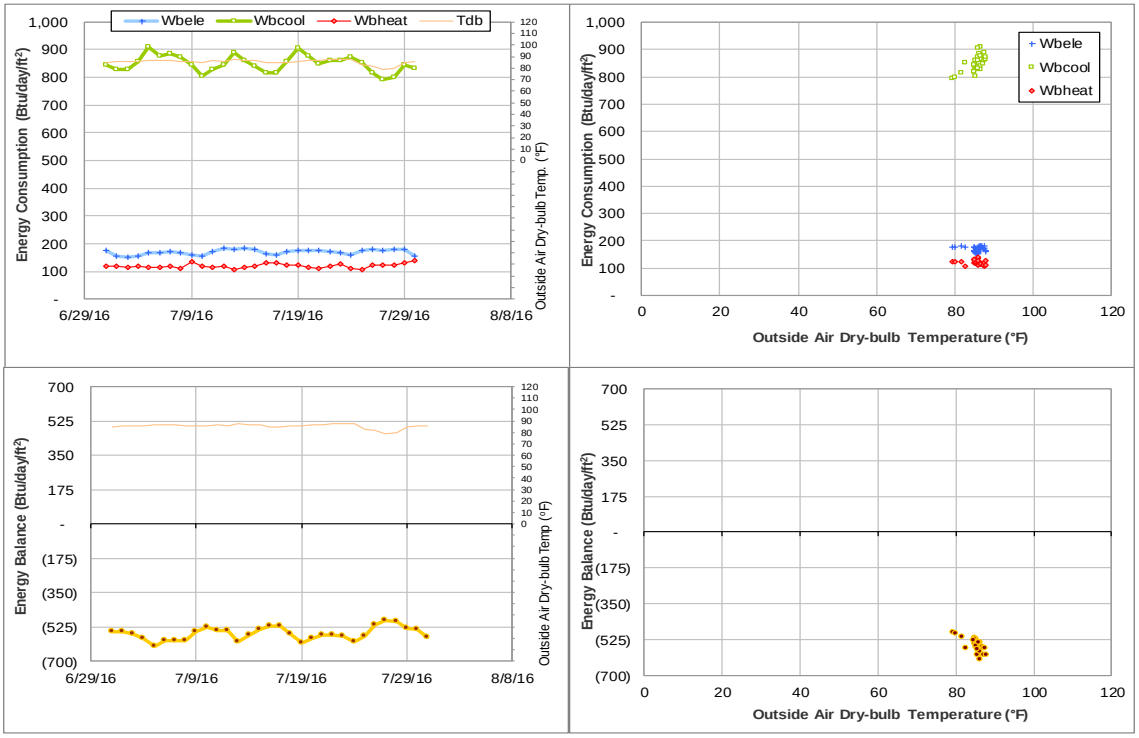


Figure IV-131 Veterinary Large Animal Hospital TAMU BLDG # 1194 Energy Balance Plot during July 2016

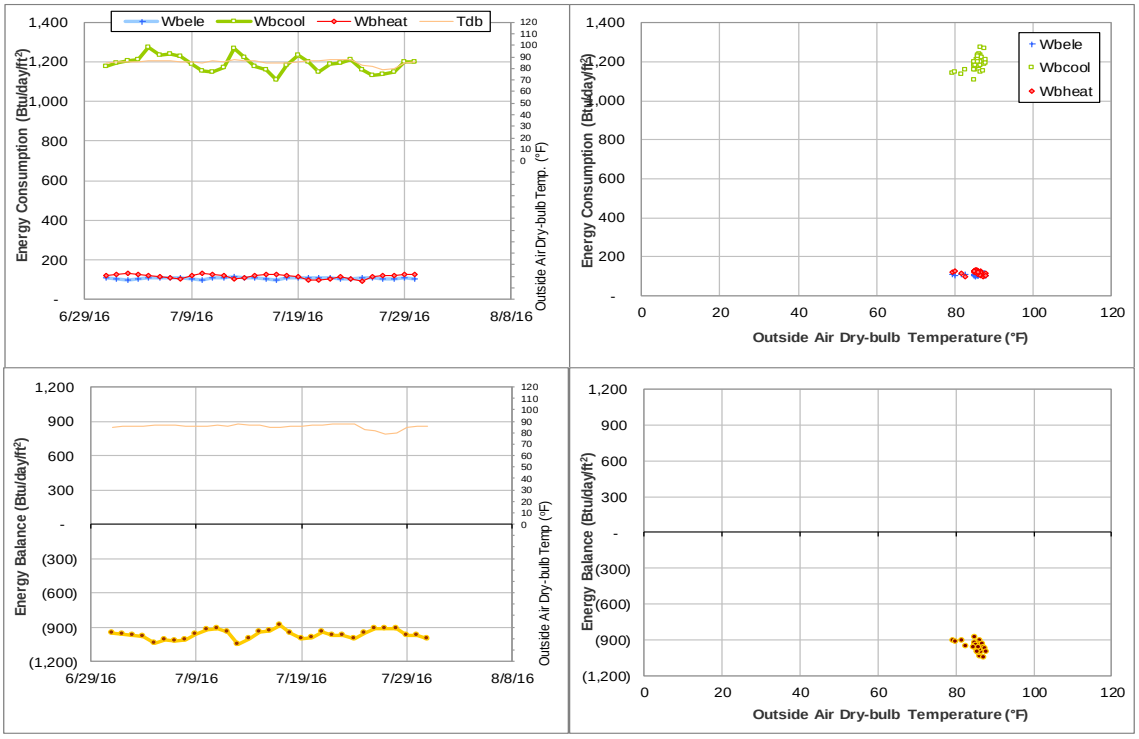


Figure IV-132 Veterinary Research Building TAMU BLDG # 1197 Energy Balance Plot during July 2016

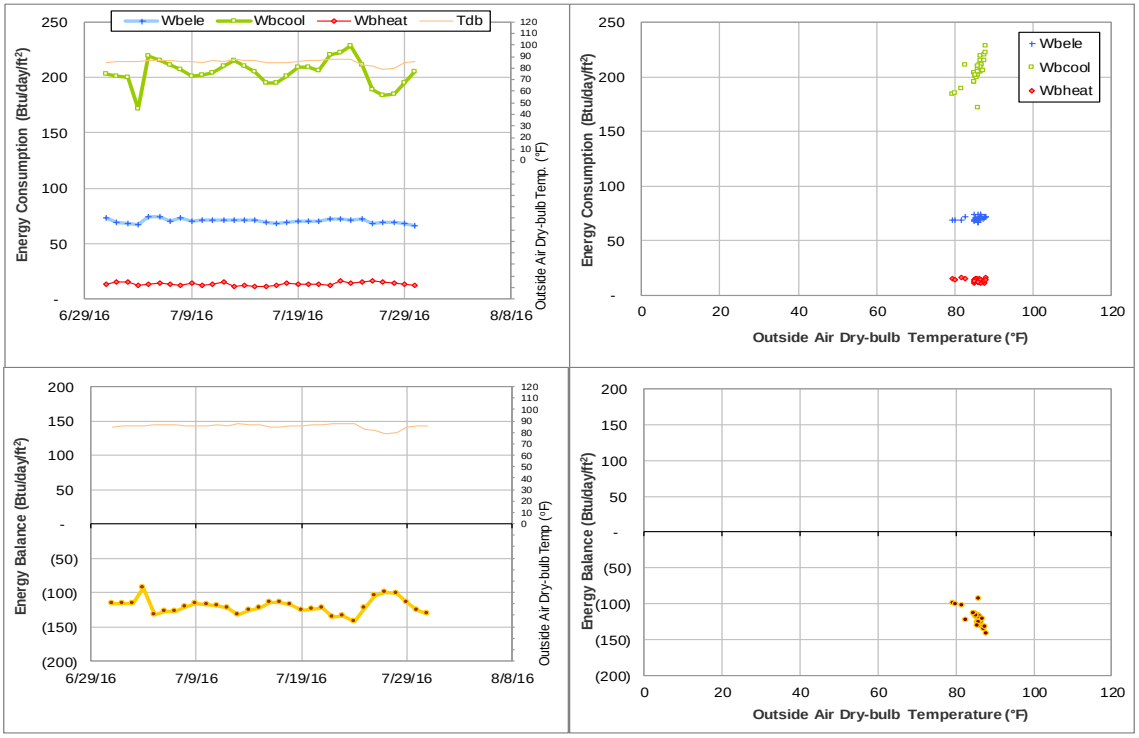


Figure IV-133 Hullabaloo Residence Hall TAMU BLDG # 1416 Energy Balance Plot during July 2016

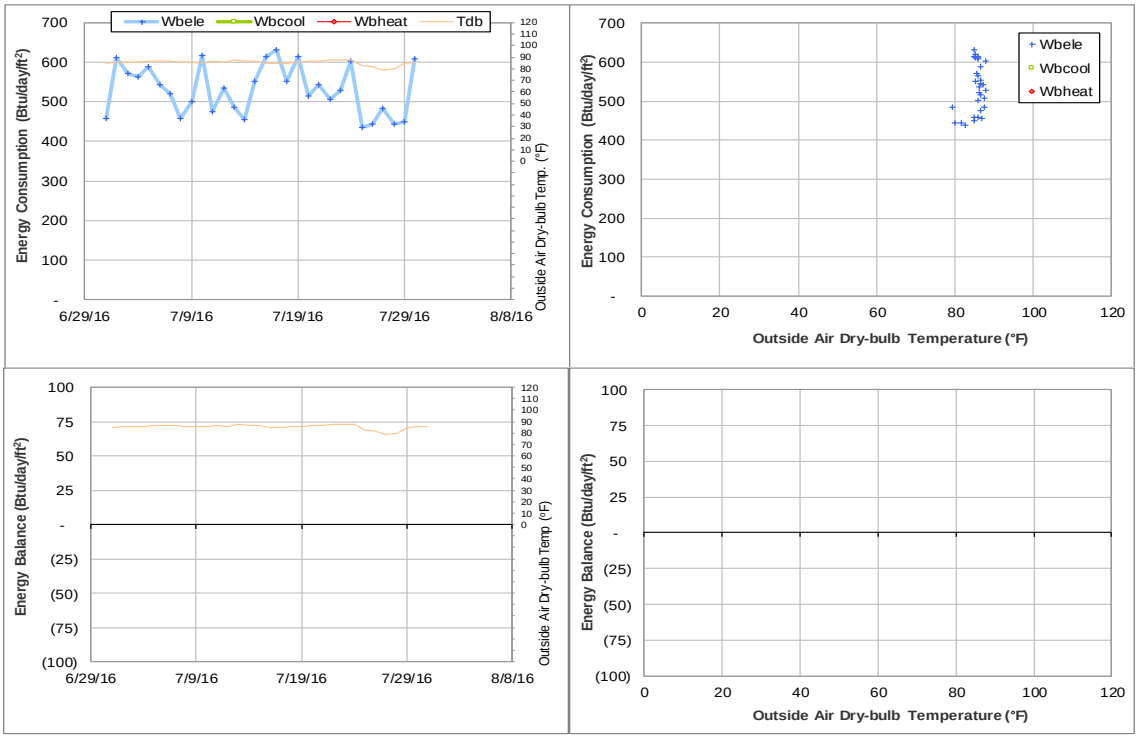


Figure IV-134 University Apartments - Laundry at the Gardens TAMU BLDG # 1450 Energy Balance Plot during July 2016

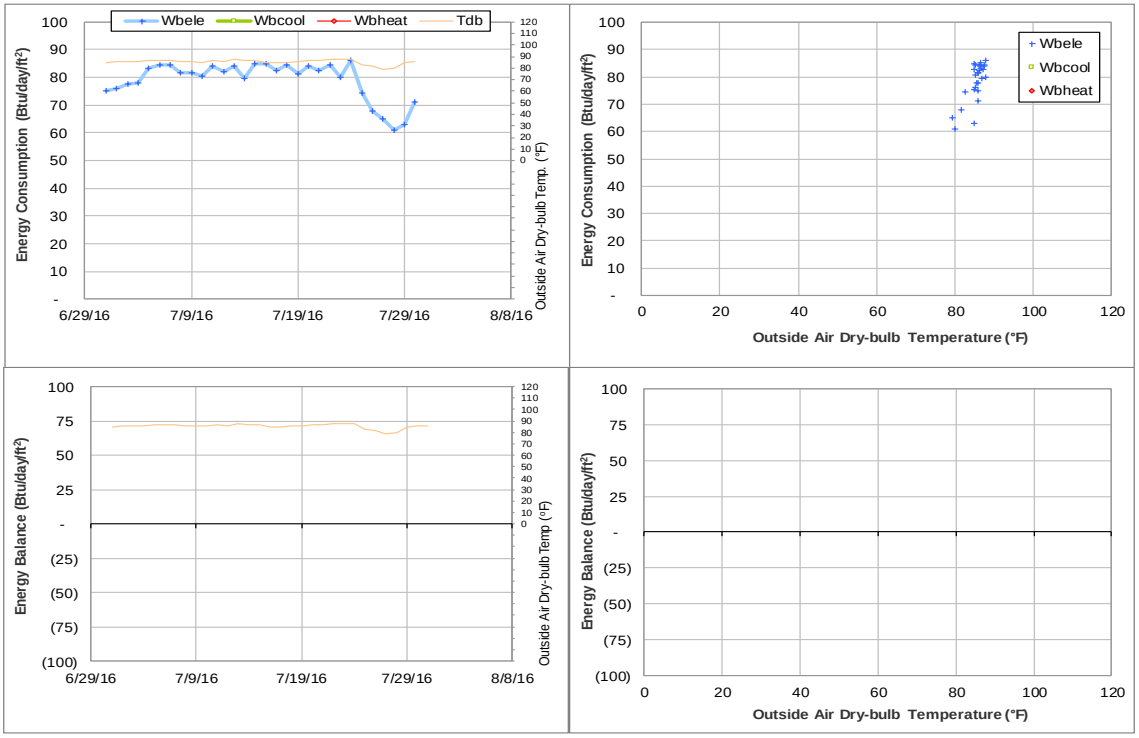


Figure IV-135 University Apartments - The Gardens J TAMU BLDG # 1451 Energy Balance Plot during July 2016

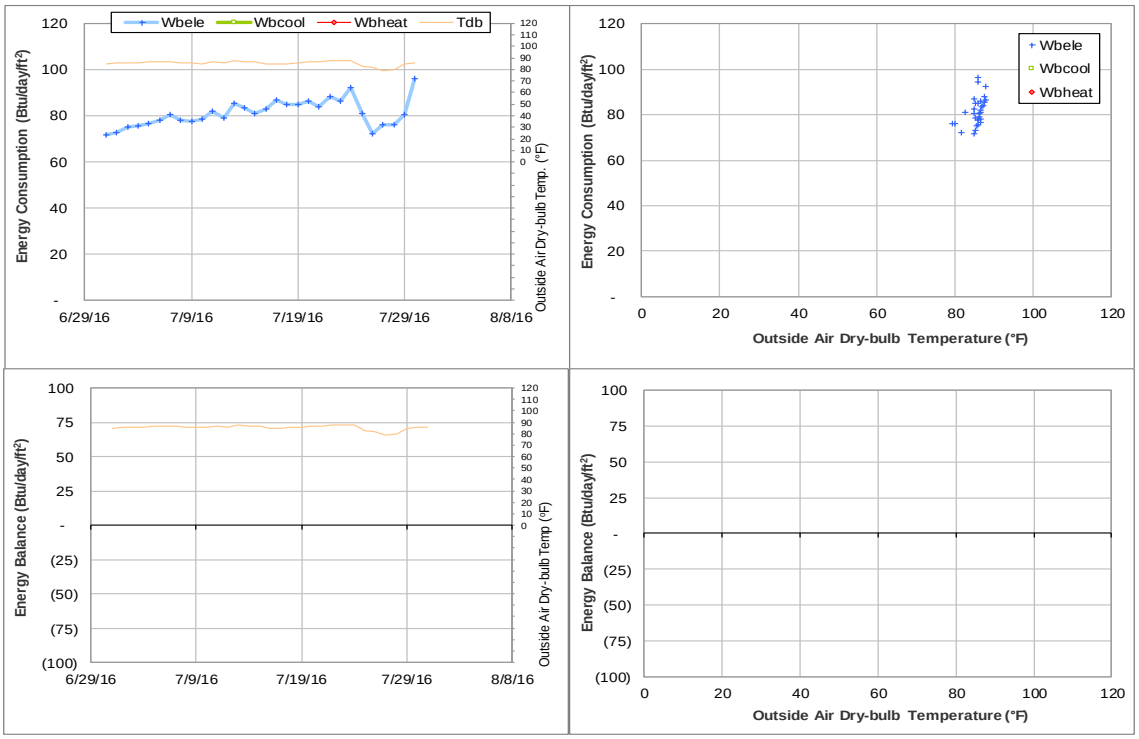


Figure IV-136 University Apartments - The Gardens L TAMU BLDG # 1453 Energy Balance Plot during July 2016

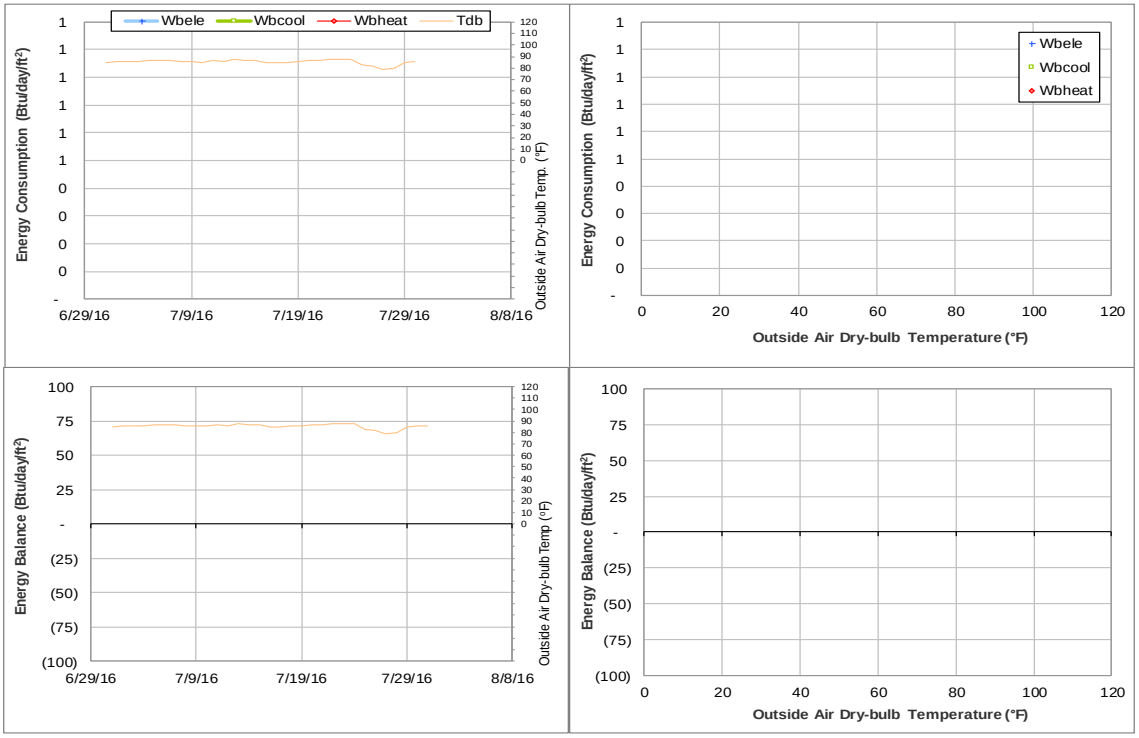


Figure IV-137 University Apartments - The Gardens F TAMU BLDG # 1454 Energy Balance Plot during July 2016

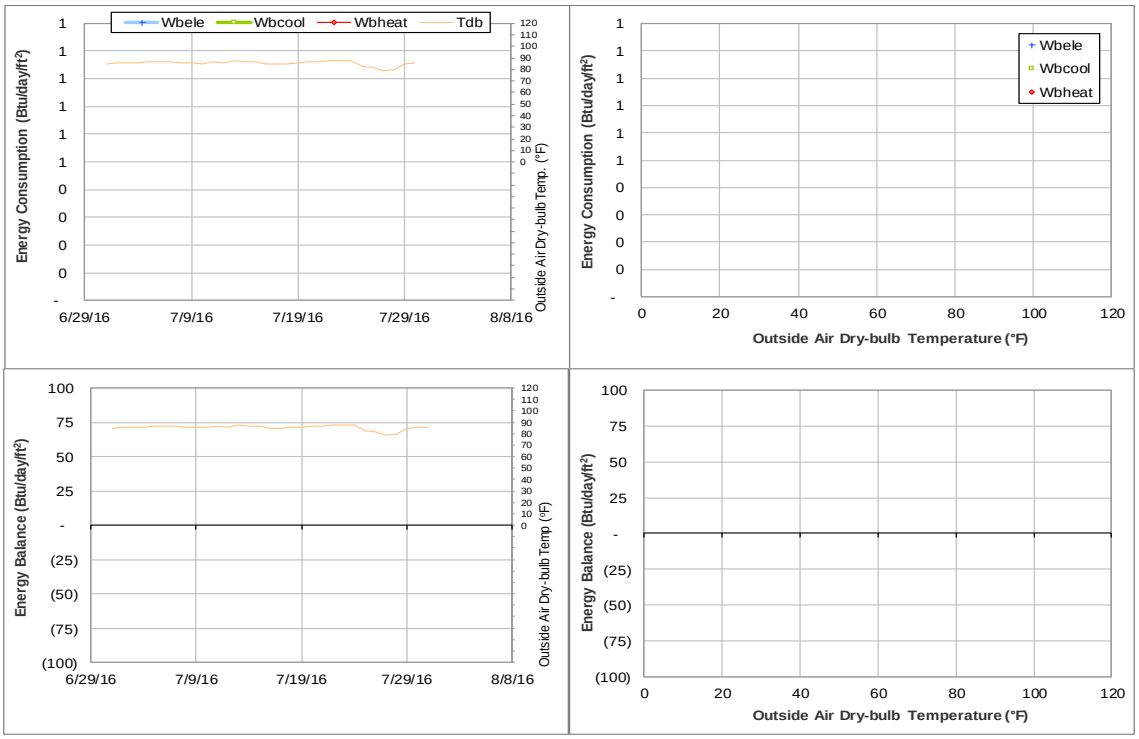


Figure IV-138 University Apartments - The Gardens G TAMU BLDG # 1455 Energy Balance Plot during July 2016

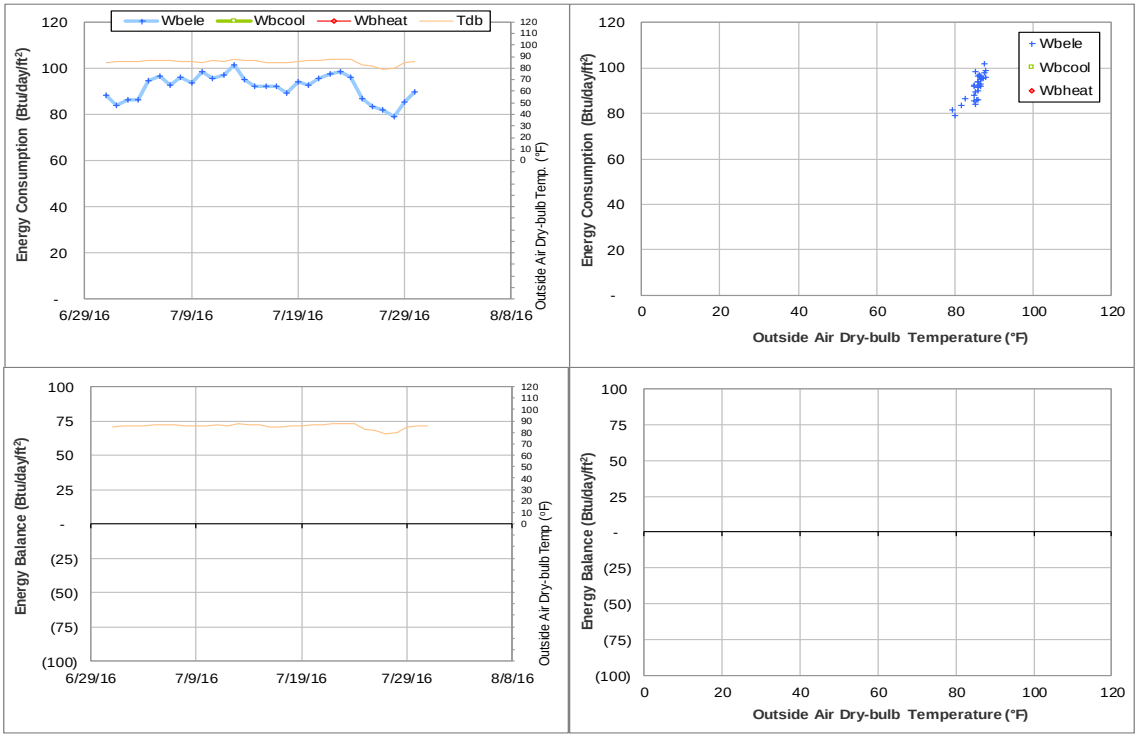


Figure IV-139 University Apartments - The Gardens H TAMU BLDG # 1456 Energy Balance Plot during July 2016

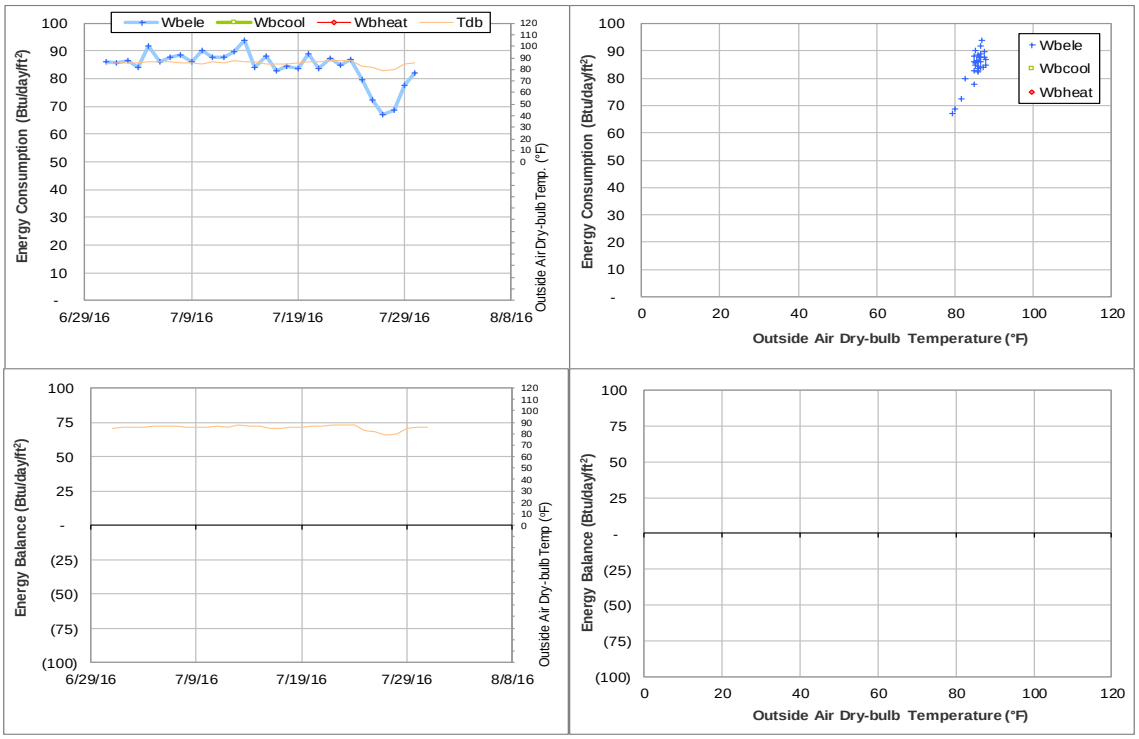


Figure IV-140 University Apartments - The Gardens M TAMU BLDG # 1457 Energy Balance Plot during July 2016

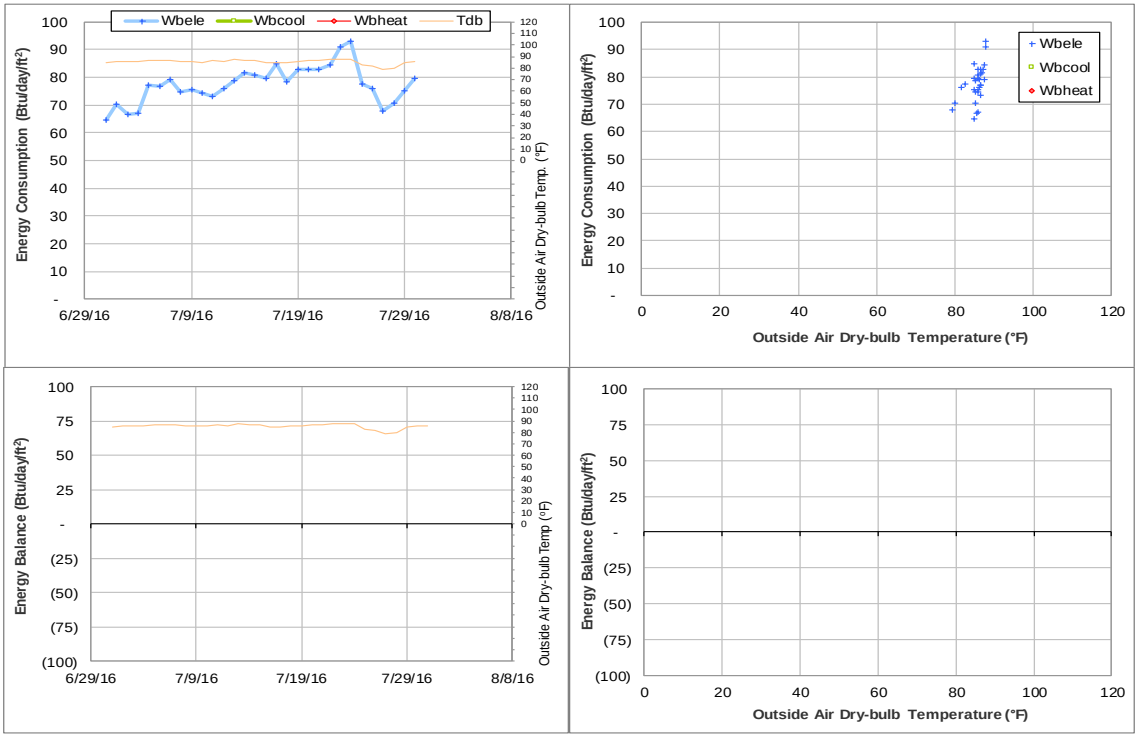


Figure IV-141 University Apartments - The Gardens N TAMU BLDG # 1458 Energy Balance Plot during July 2016

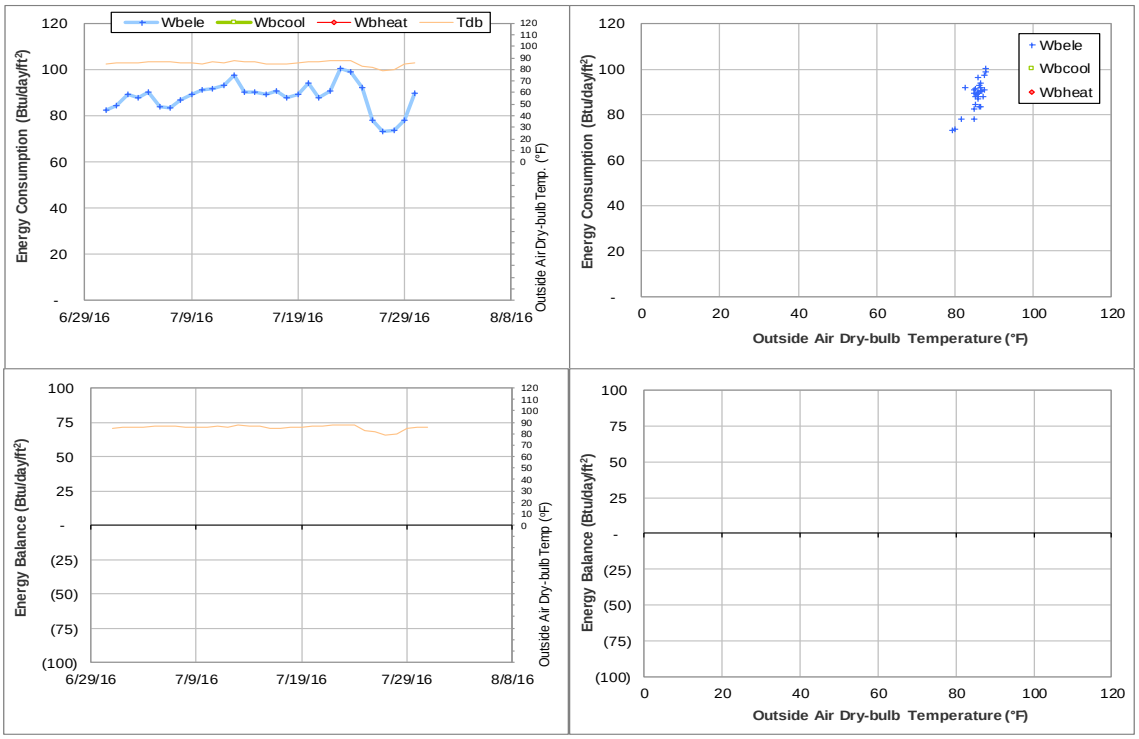


Figure IV-142 University Apartments - The Gardens P TAMU BLDG # 1459 Energy Balance Plot during July 2016

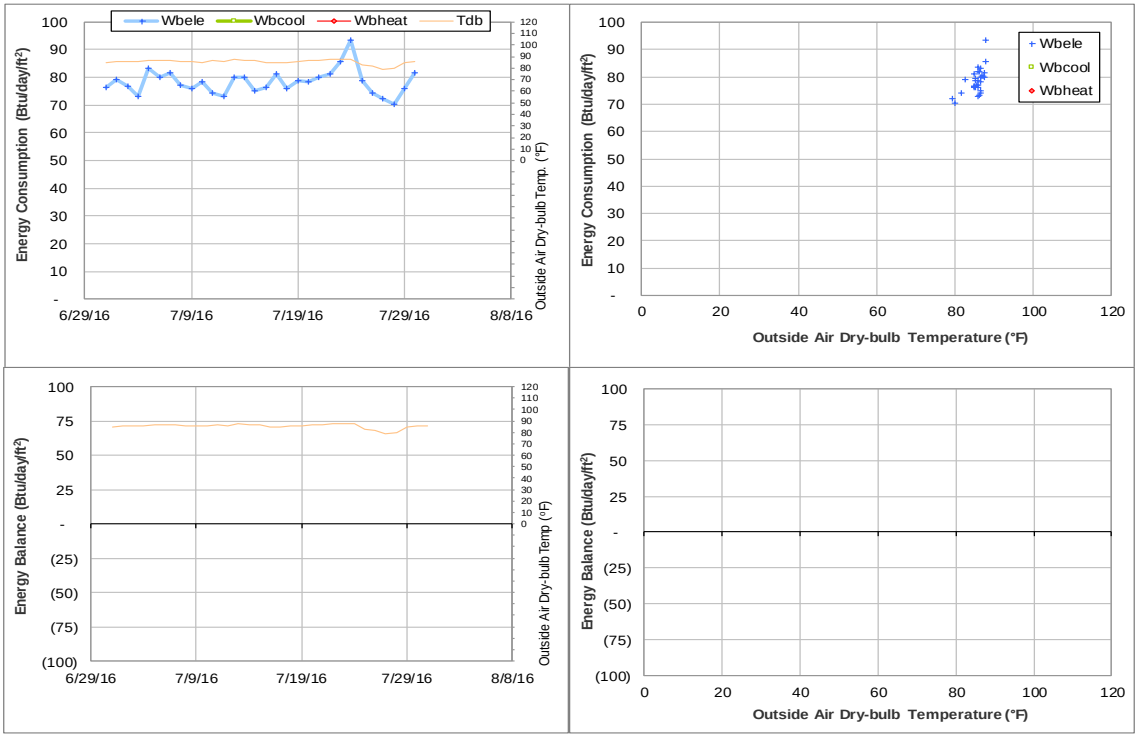


Figure IV-143 University Apartments - The Gardens Q TAMU BLDG # 1460 Energy Balance Plot during July 2016

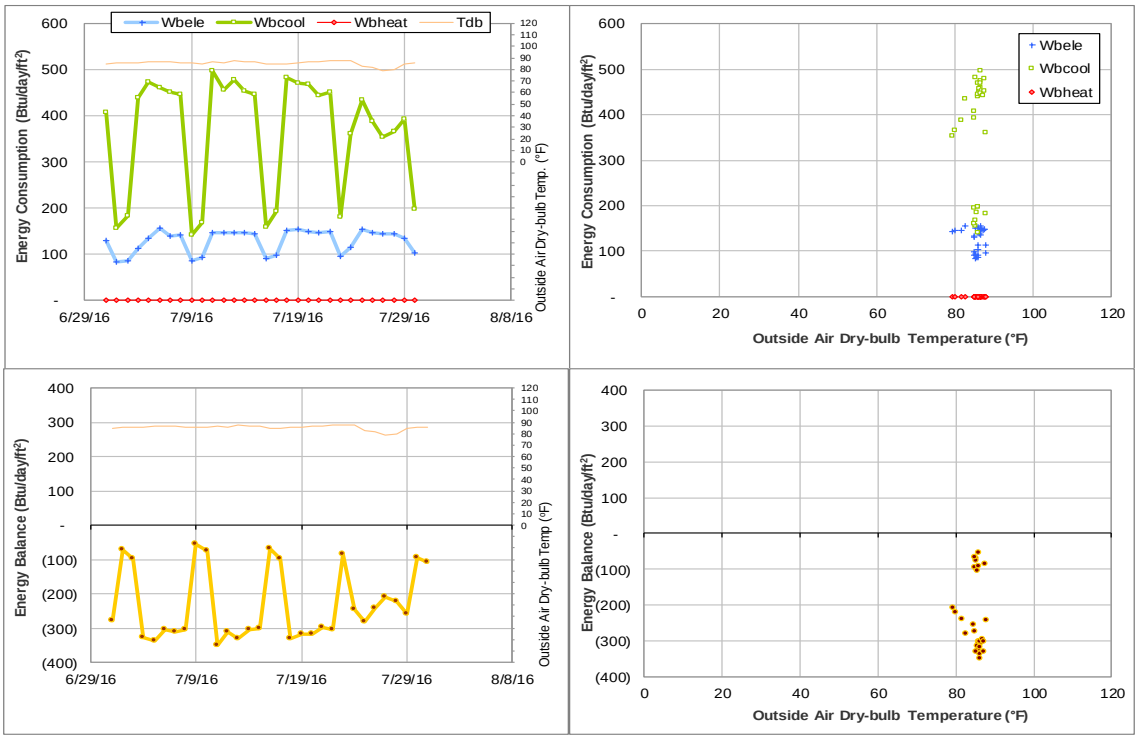


Figure IV-144 Utilities & Energy Services Business Office TAMU BLDG # 1497 Energy Balance Plot during July 2016

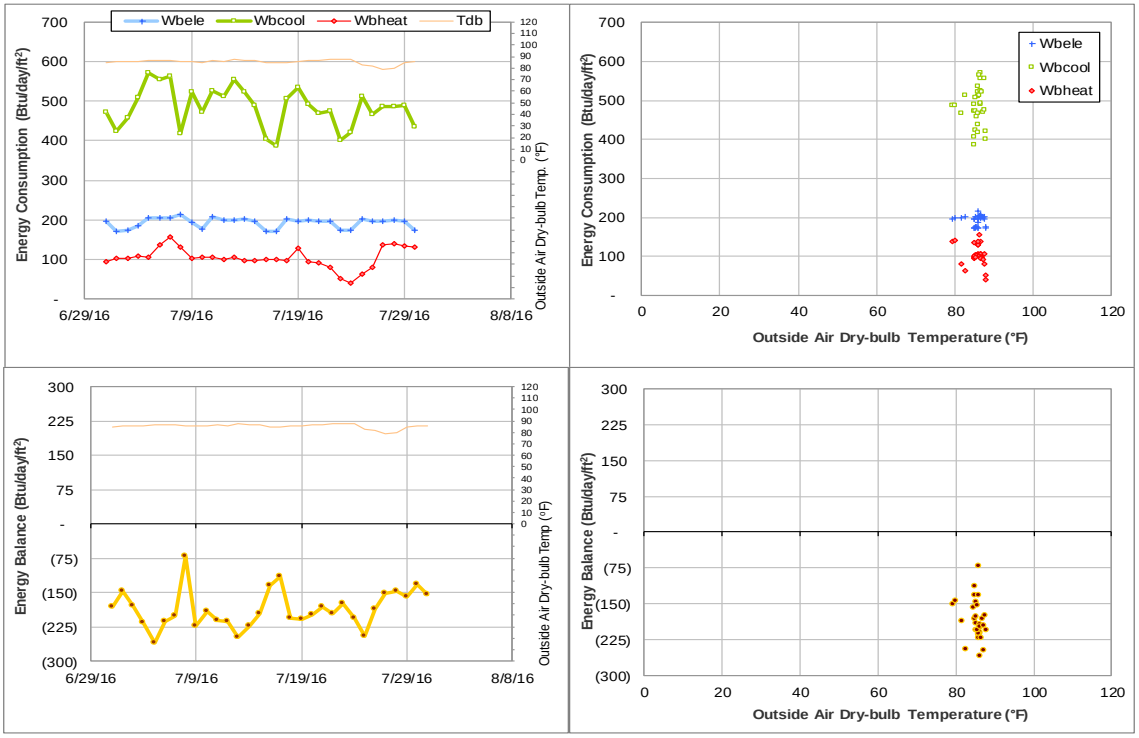


Figure IV-145 Kleberg Center TAMU BLDG # 1501 Energy Balance Plot during July 2016

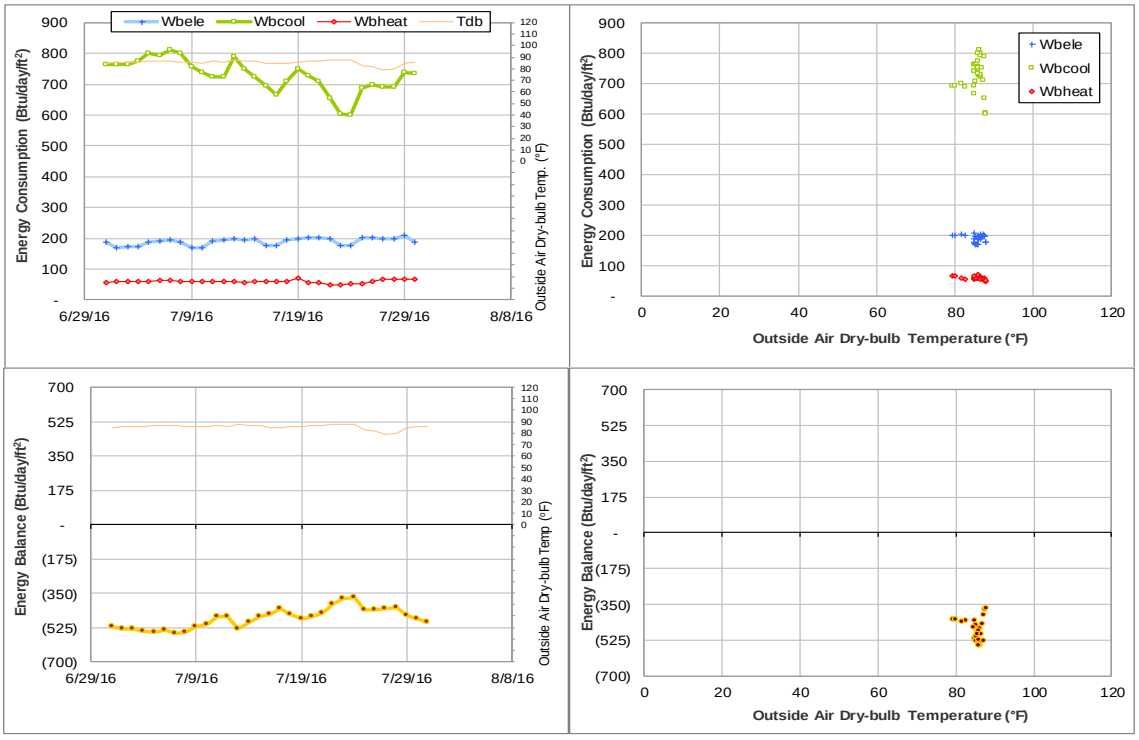


Figure IV-146 Heep Center TAMU BLDG # 1502 Energy Balance Plot during July 2016

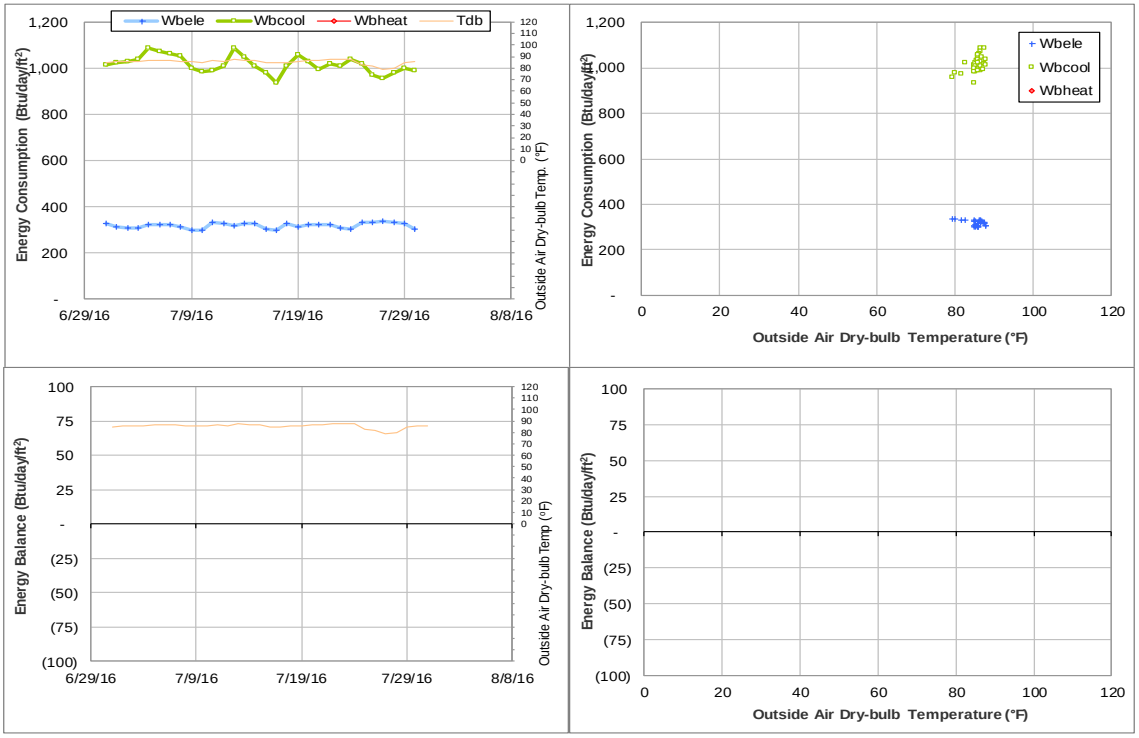


Figure IV-147 Cater-Mattil Hall TAMU BLDG # 1503 Energy Balance Plot during July 2016

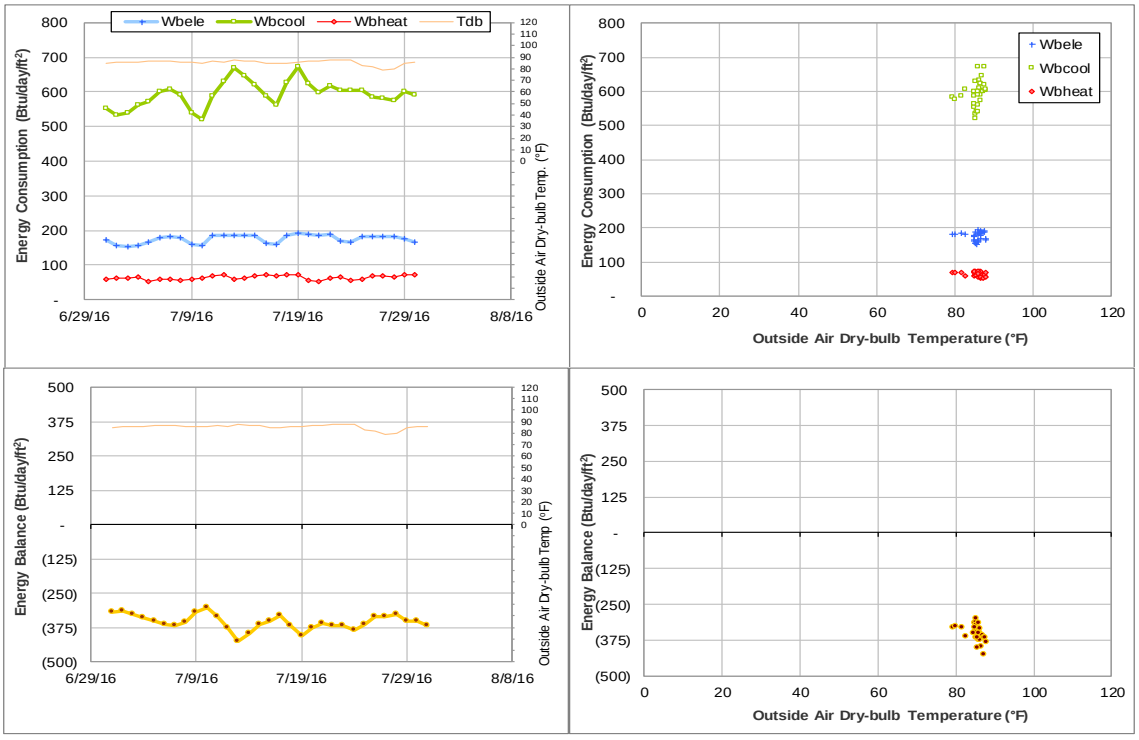


Figure IV-148 Reynolds Medical Sciences Building TAMU BLDG # 1504 Energy Balance Plot during July 2016

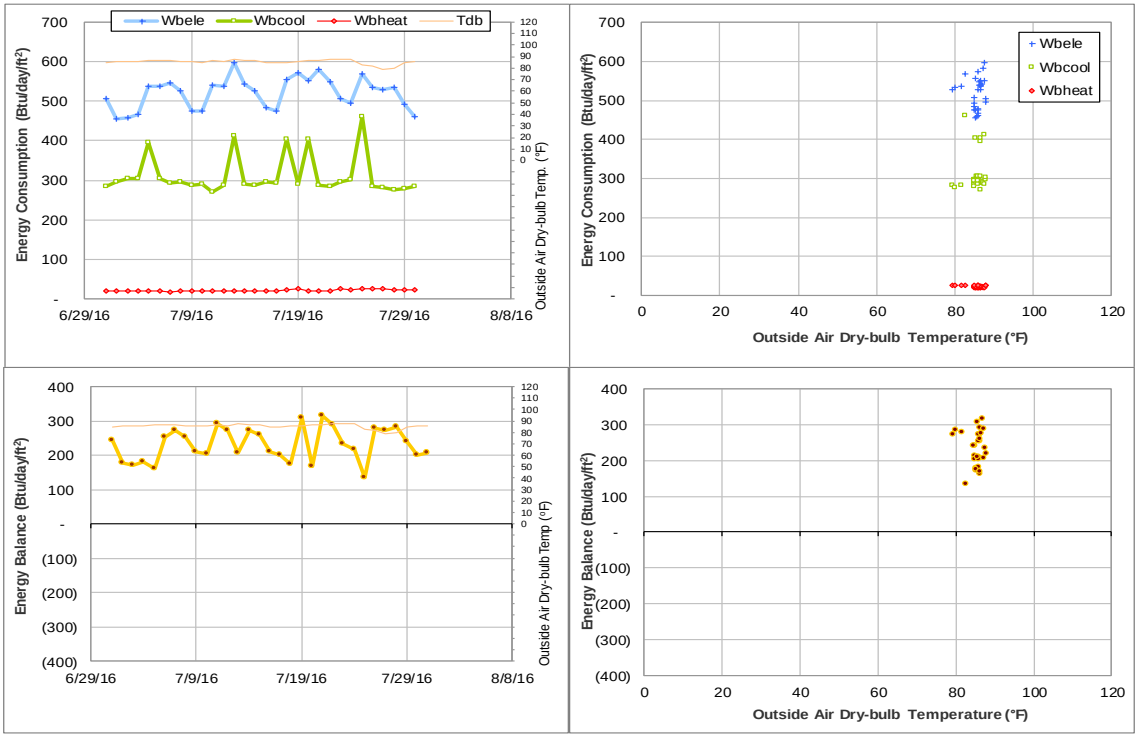


Figure IV-149 Rosenthal Meat Science & Technology Center TAMU BLDG # 1505 Energy Balance Plot during July 2016

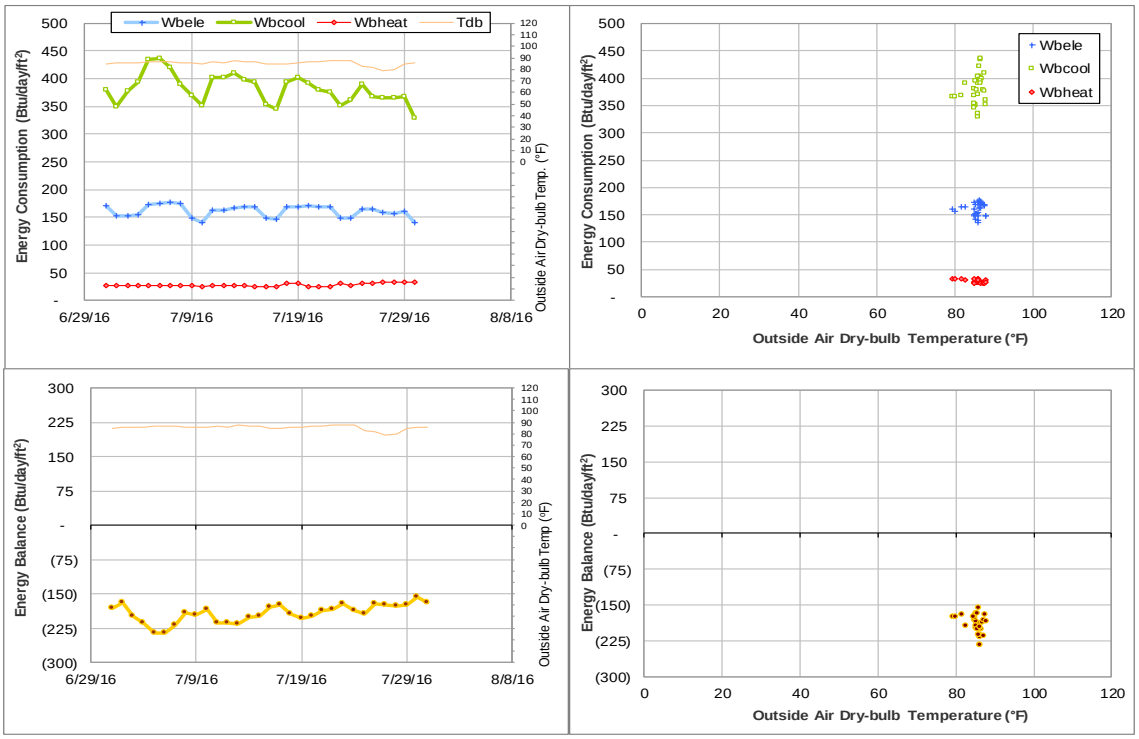


Figure IV-150 Horticulture-Forest Science Building TAMU BLDG # 1506 Energy Balance Plot during July 2016

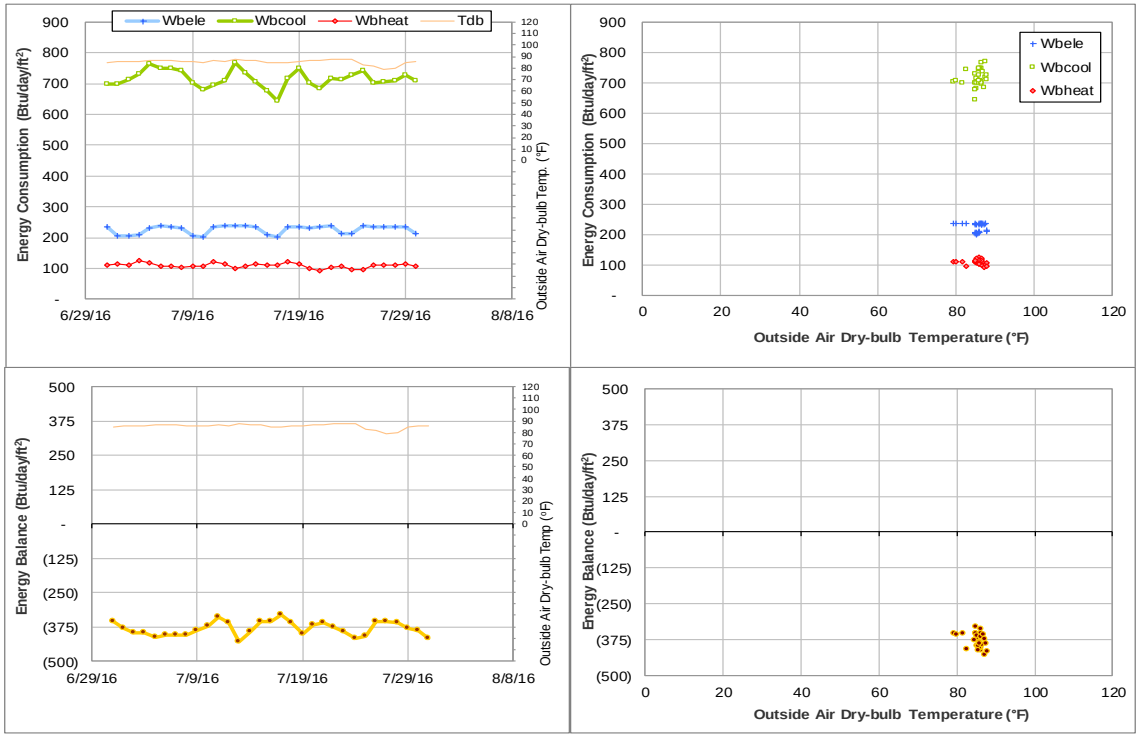


Figure IV-151 Biochemistry-Biophysics Building TAMU BLDG # 1507 Energy Balance Plot during July 2016

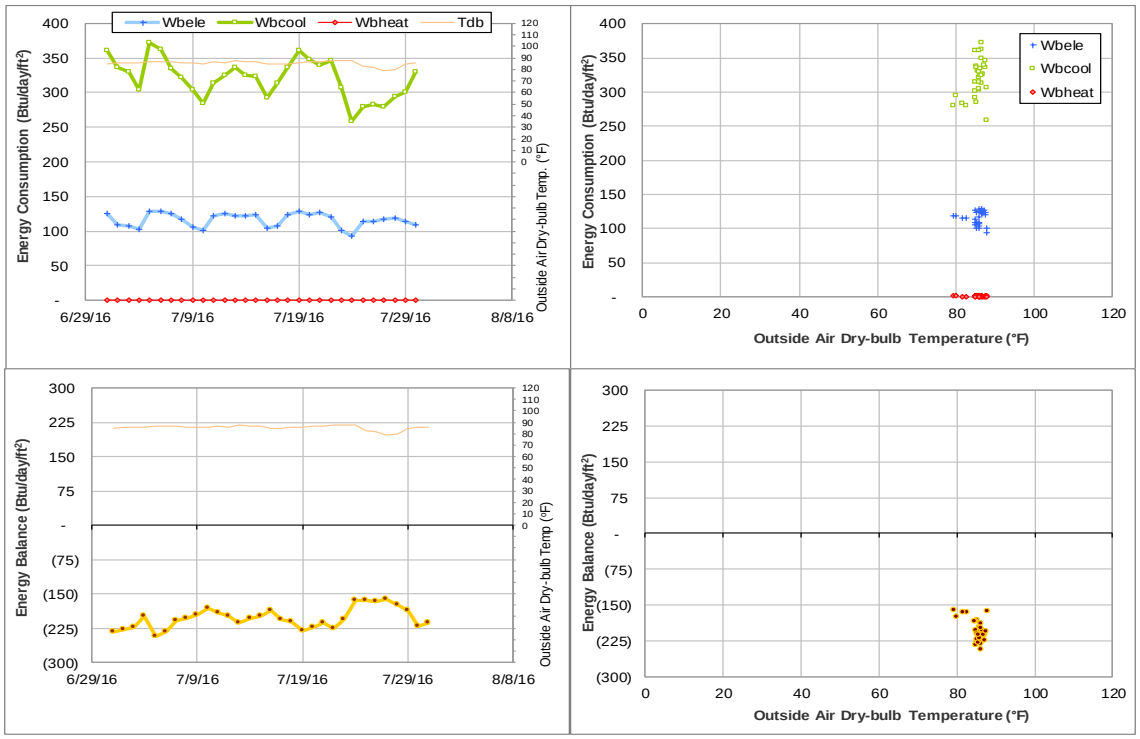


Figure IV-152 Price Hobgood Ag. Engineering Research Lab TAMU BLDG # 1508 Energy Balance Plot during July 2016

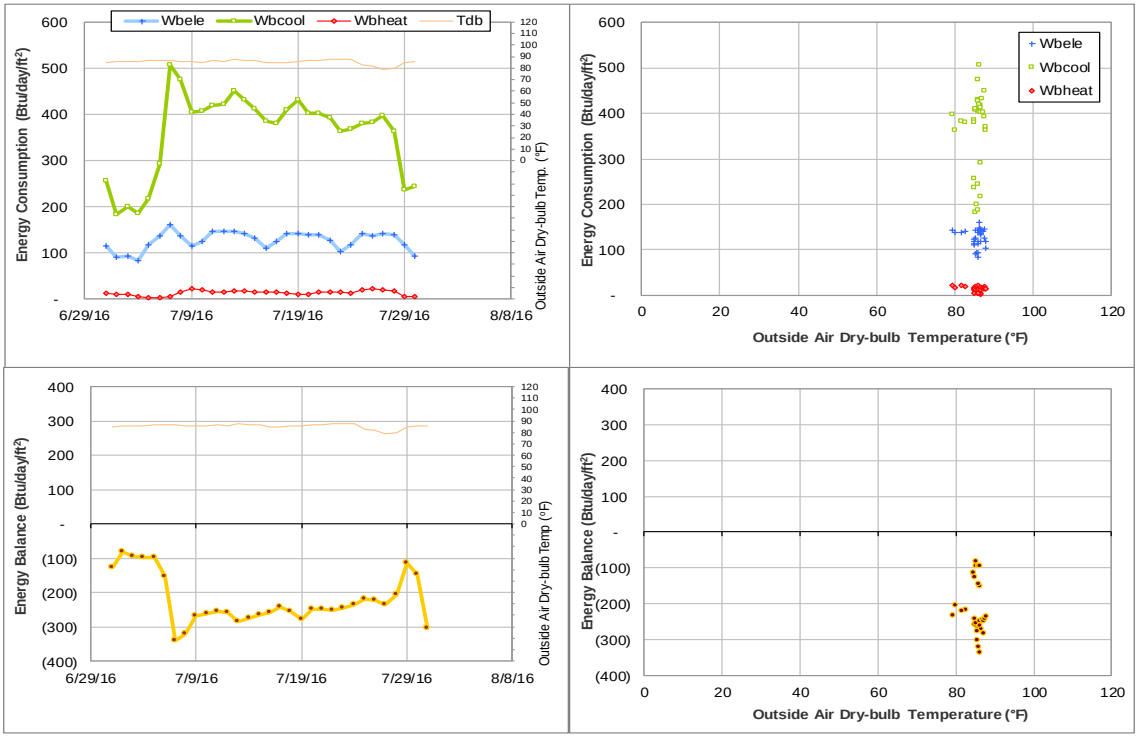


Figure IV-153 Medical Sciences Library TAMU BLDG # 1509 Energy Balance Plot during July 2016

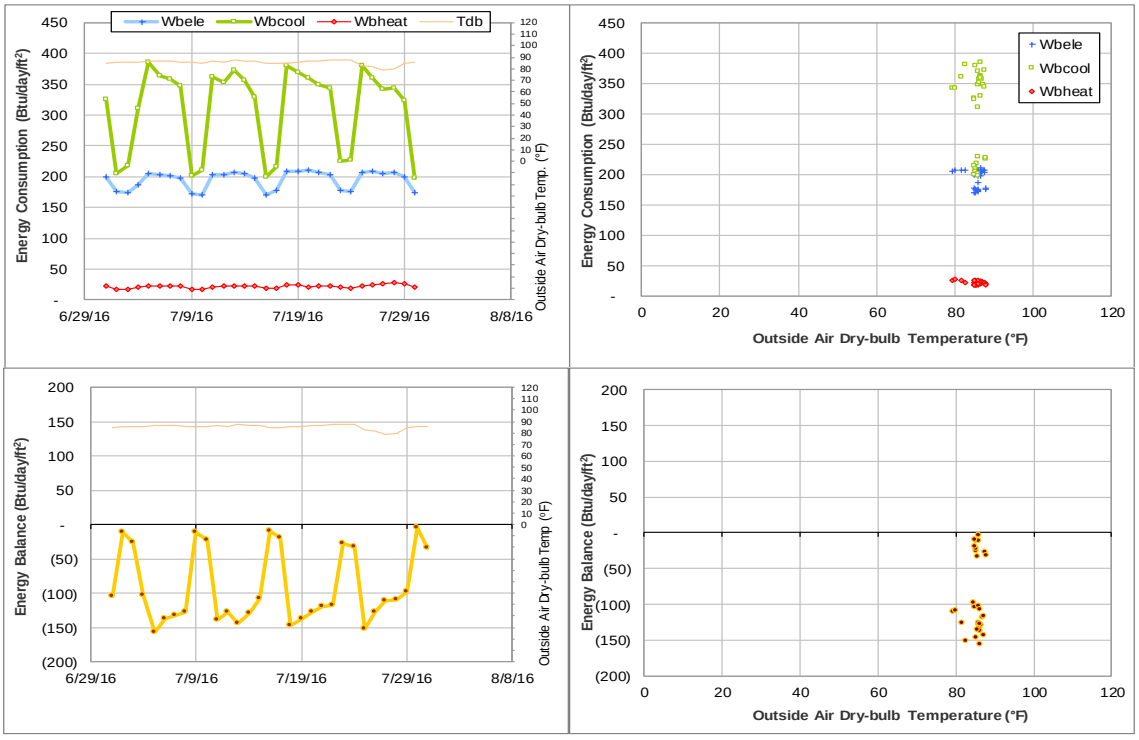


Figure IV-154 Wehner Building TAMU BLDG # 1510 Energy Balance Plot during July 2016

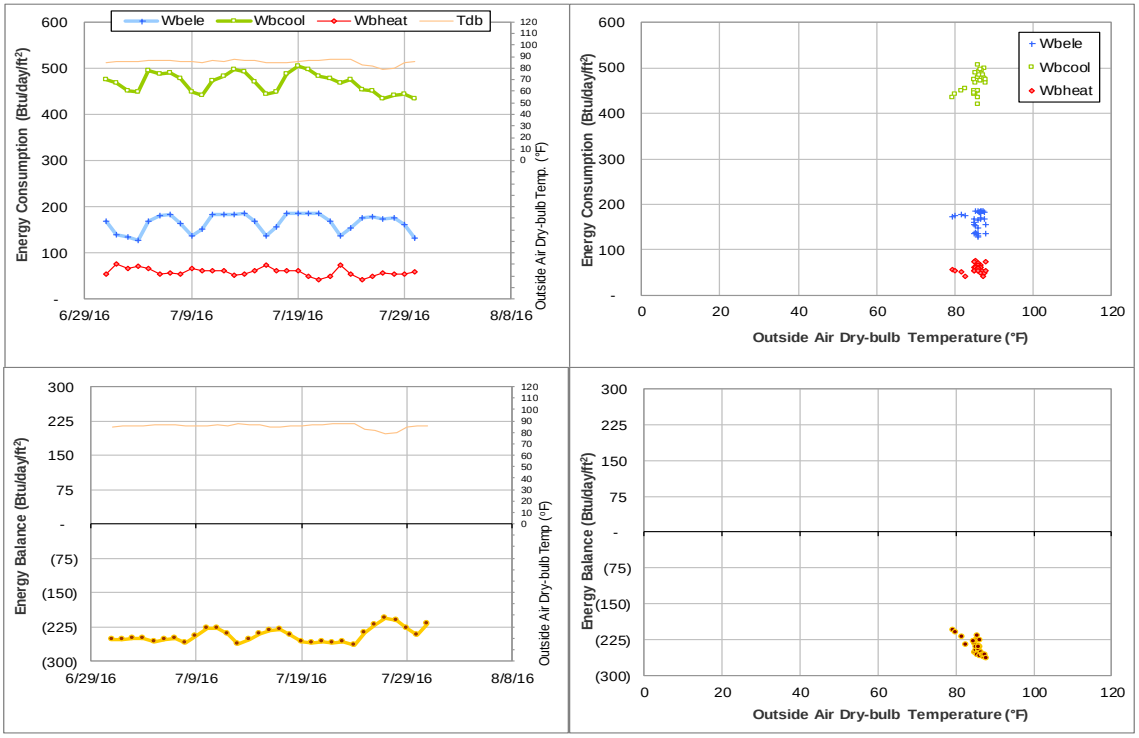


Figure IV-155 West Campus Library Facility TAMU BLDG # 1511 Energy Balance Plot during July 2016

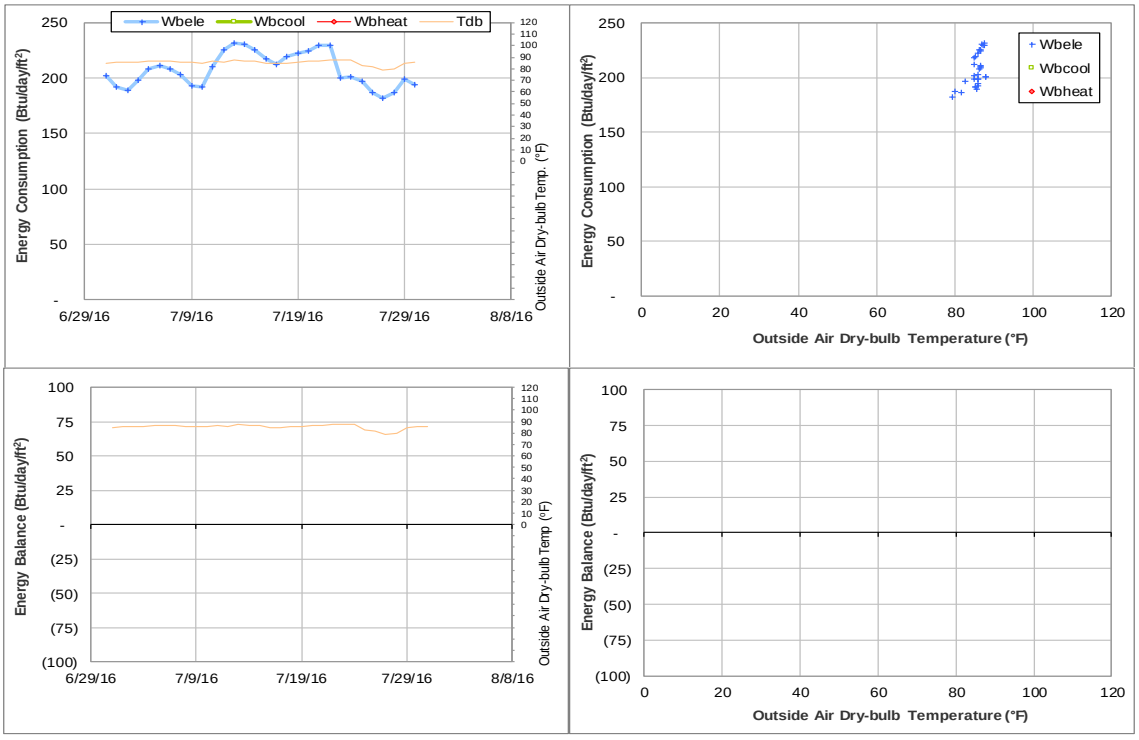


Figure IV-156 Southern Crop Improvement Greenhouse TAMU BLDG # 1512 Energy Balance Plot during July 2016

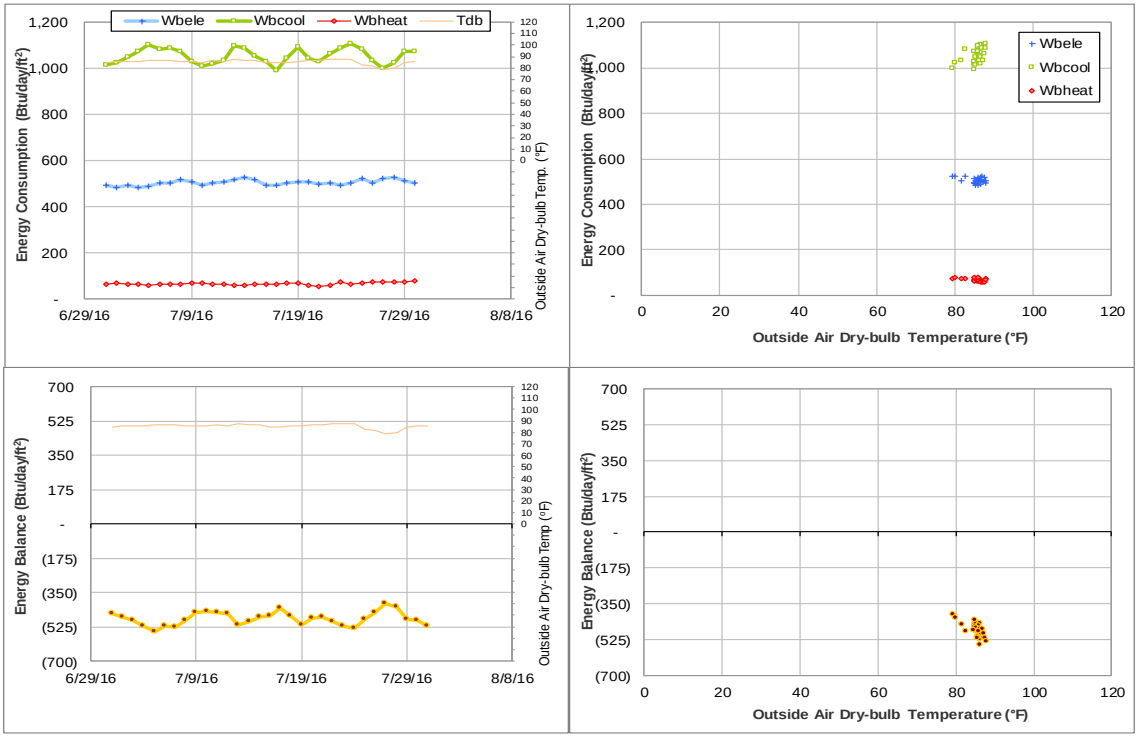


Figure IV-157 Borlaug Center for Southern Crop Improvement TAMU BLDG # 1513 Energy Balance Plot during July 2016

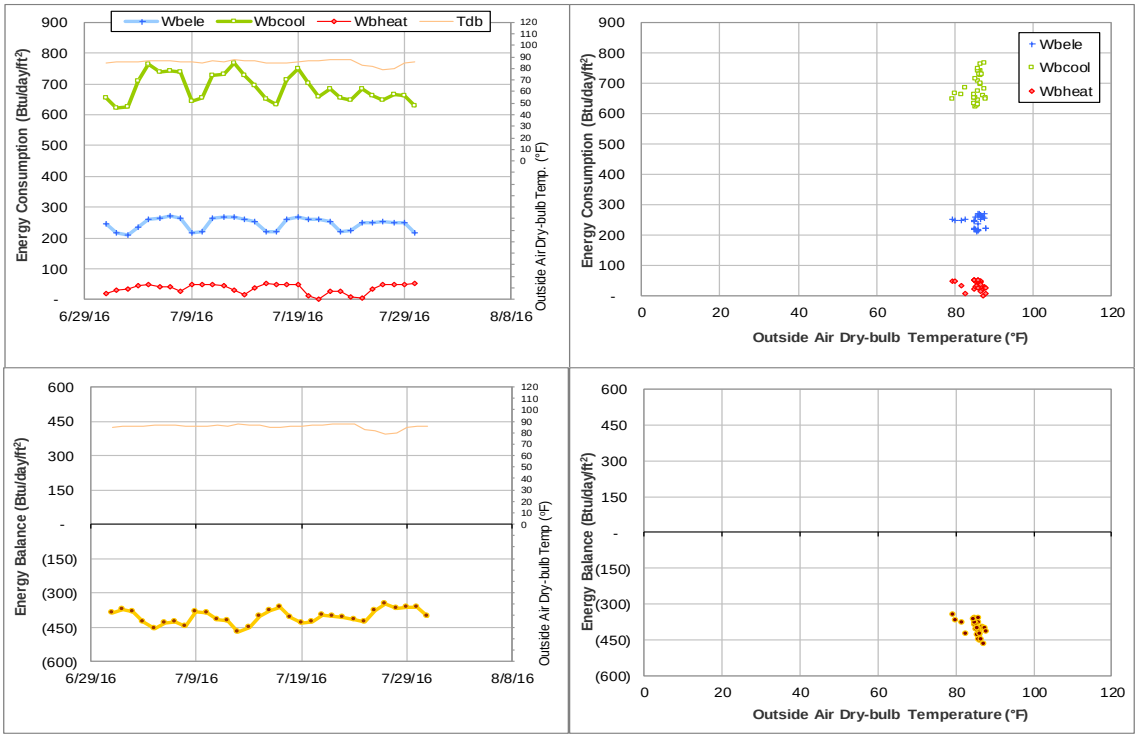


Figure IV-158 TX School of Rural Public Health TAMU BLDG # 1518 Energy Balance Plot during July 2016

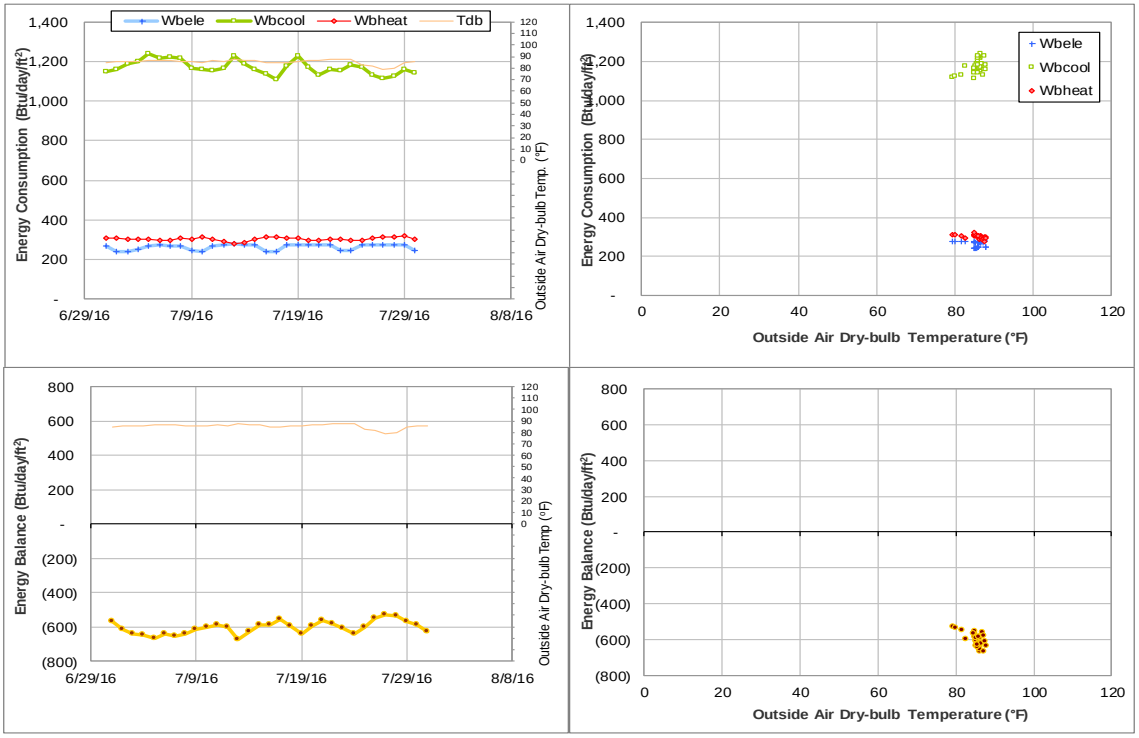


Figure IV-159 Nuclear Magnetic Resonance Facility TAMU BLDG # 1525 Energy Balance Plot during July 2016

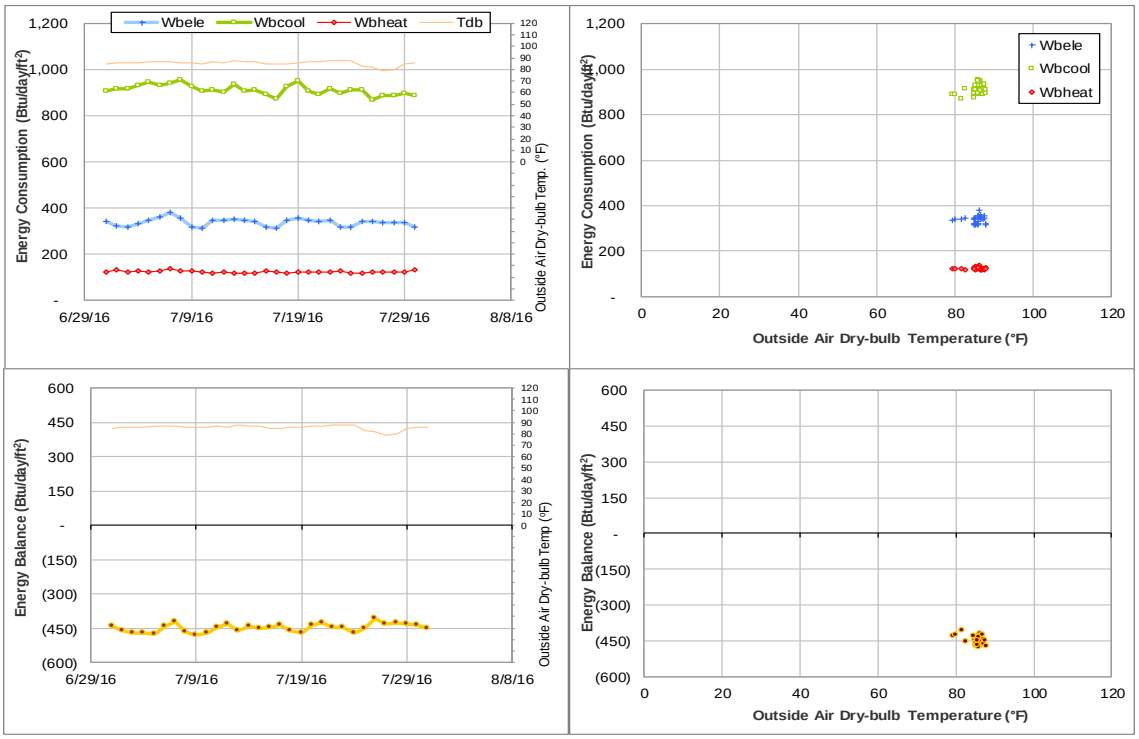


Figure IV-160 Interdisciplinary Life Sciences Building TAMU BLDG # 1530 Energy Balance Plot during July 2016

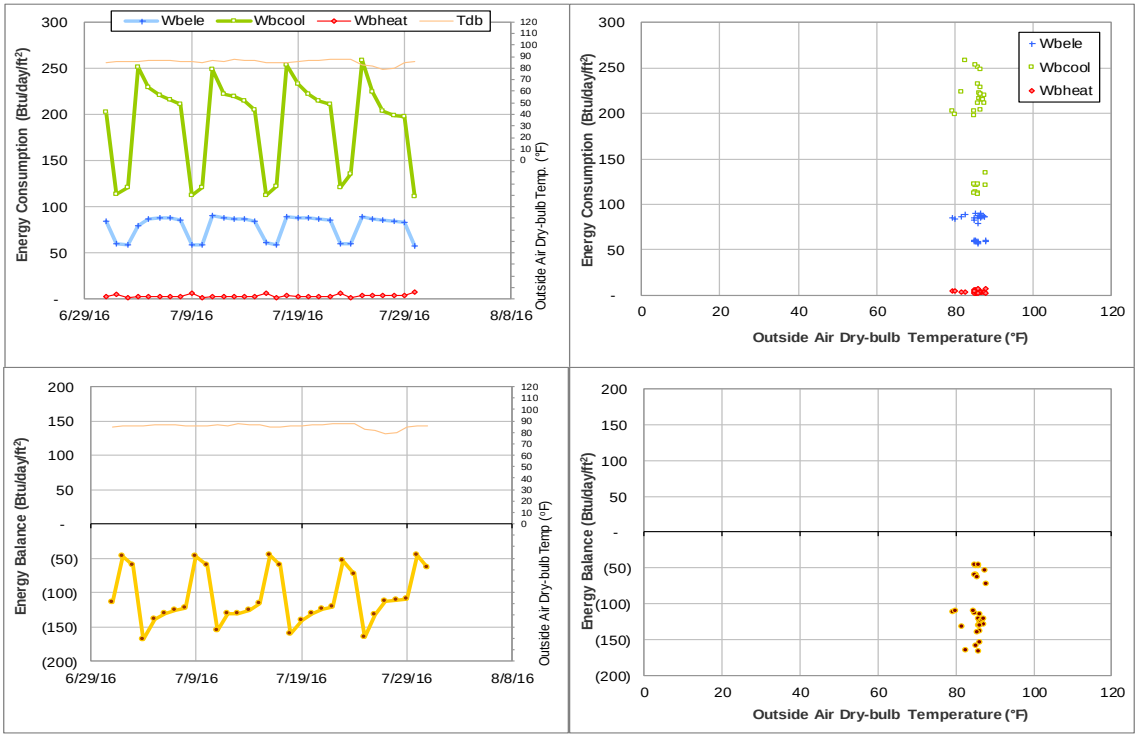


Figure IV-161 Agriculture and Life Sciences Building TAMU BLDG # 1535 Energy Balance Plot during July 2016

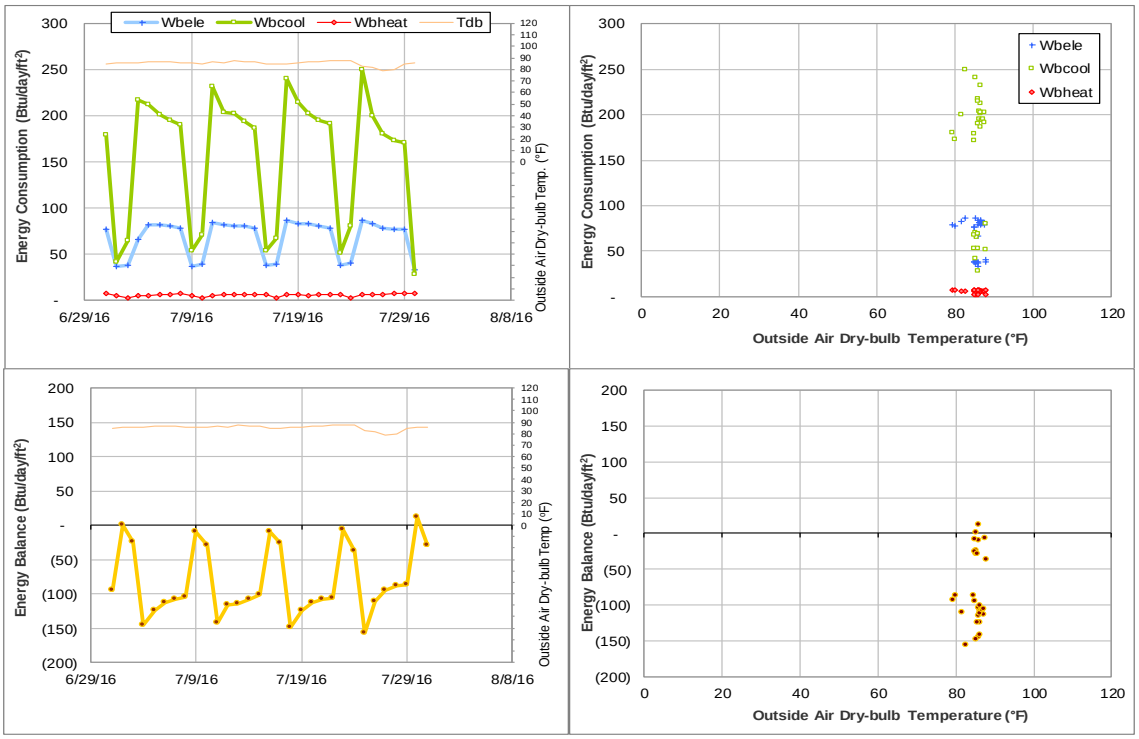


Figure IV-162 AgriLife Services Building TAMU BLDG # 1536 Energy Balance Plot during July 2016

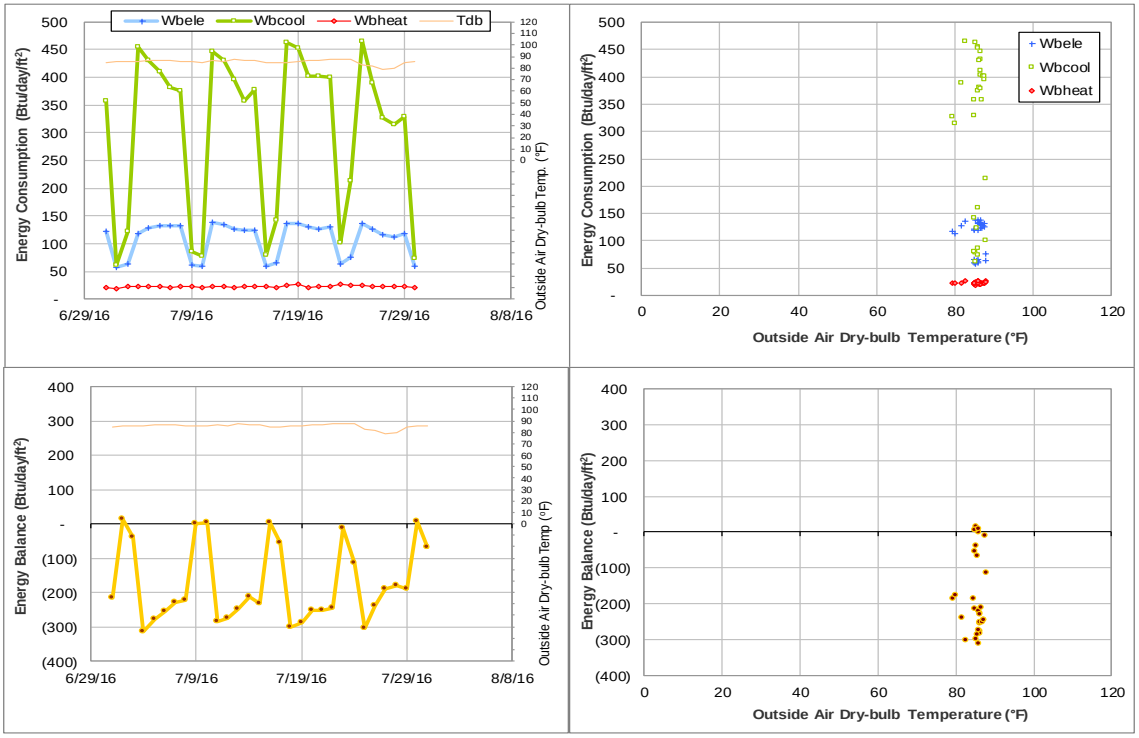


Figure IV-163 Agriculture Program Visitors Center TAMU BLDG # 1538 Energy Balance Plot during July 2016

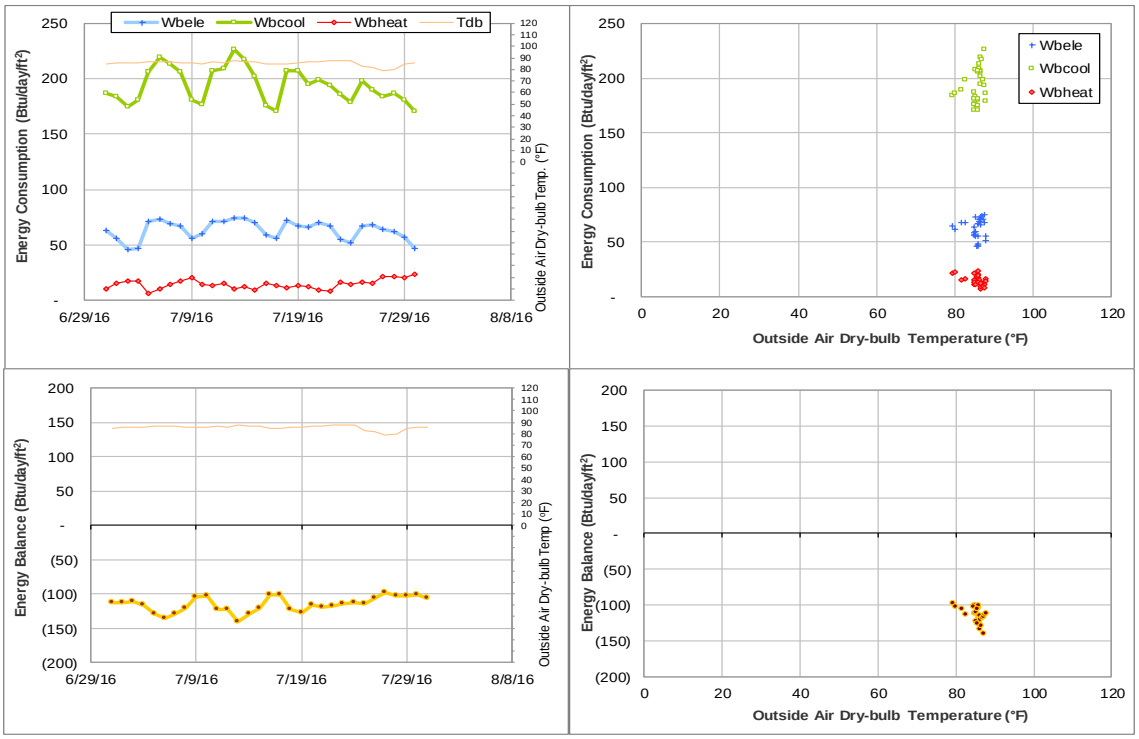


Figure IV-164 Physical Education Activity Program Building TAMU BLDG # 1540 Energy Balance Plot during July 2016

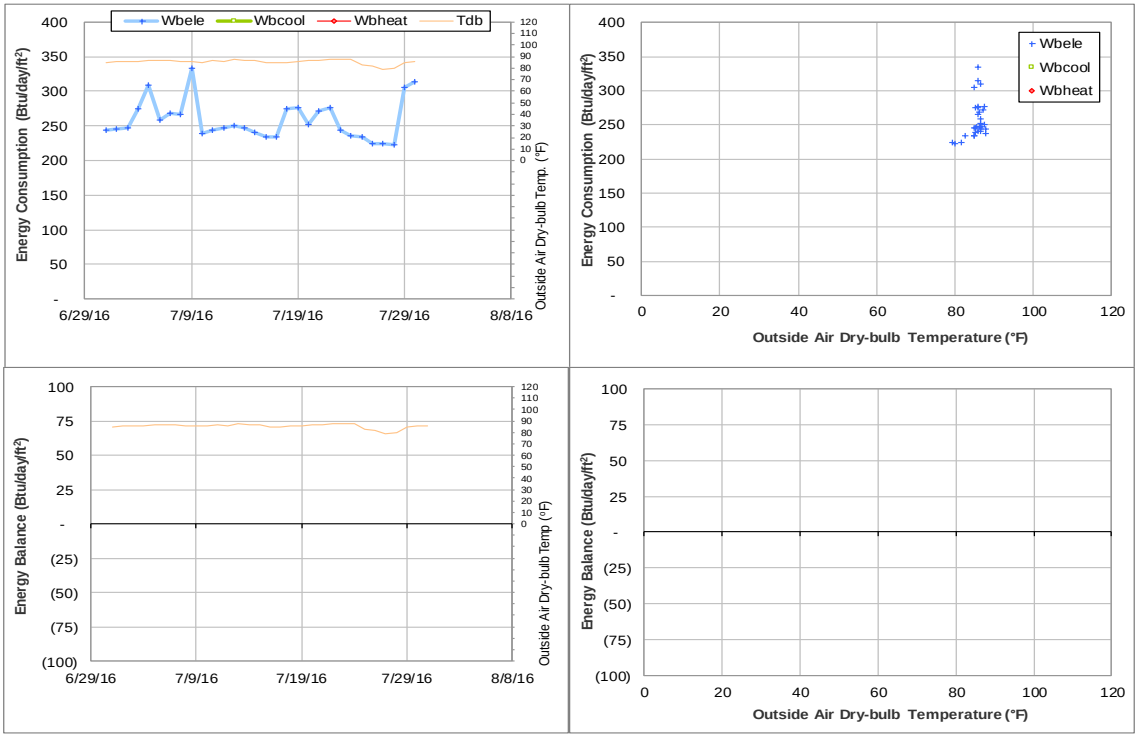


Figure IV-165 Olsen Field at Bluebell Park TAMU BLDG # 1550 Energy Balance Plot during July 2016

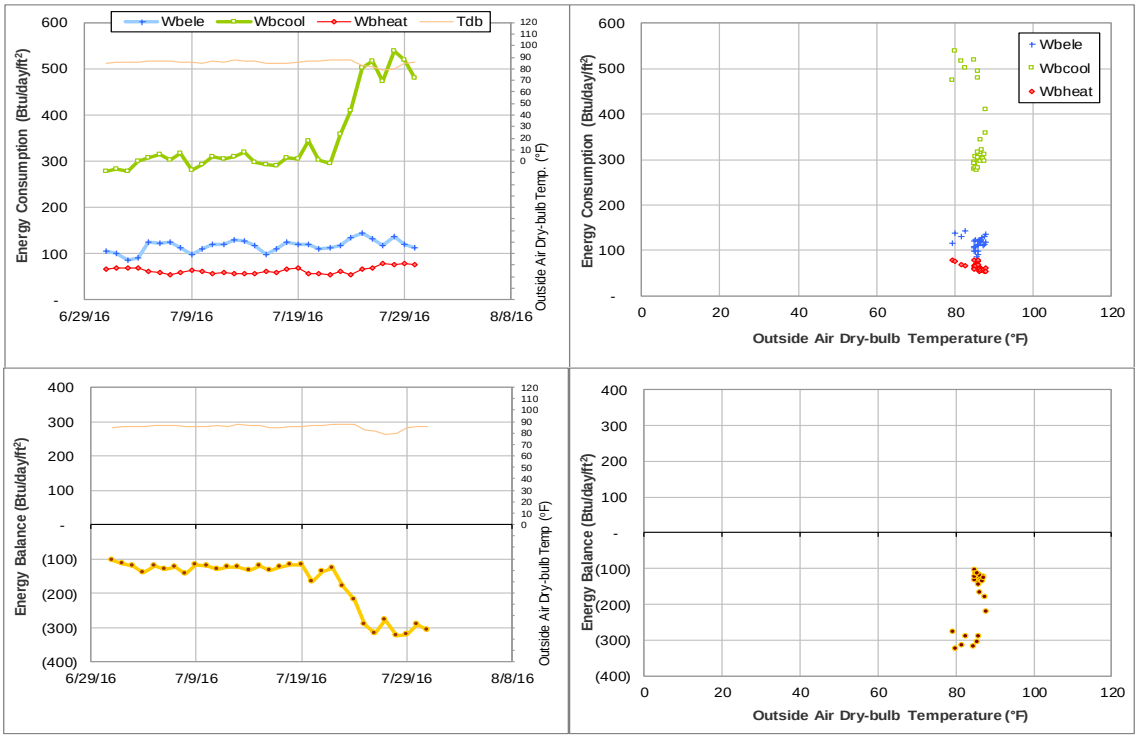


Figure IV-166 Reed Arena and Cox-McFerrin Center TAMU BLDG # 1554 and 1558 Energy Balance Plot during July 2016

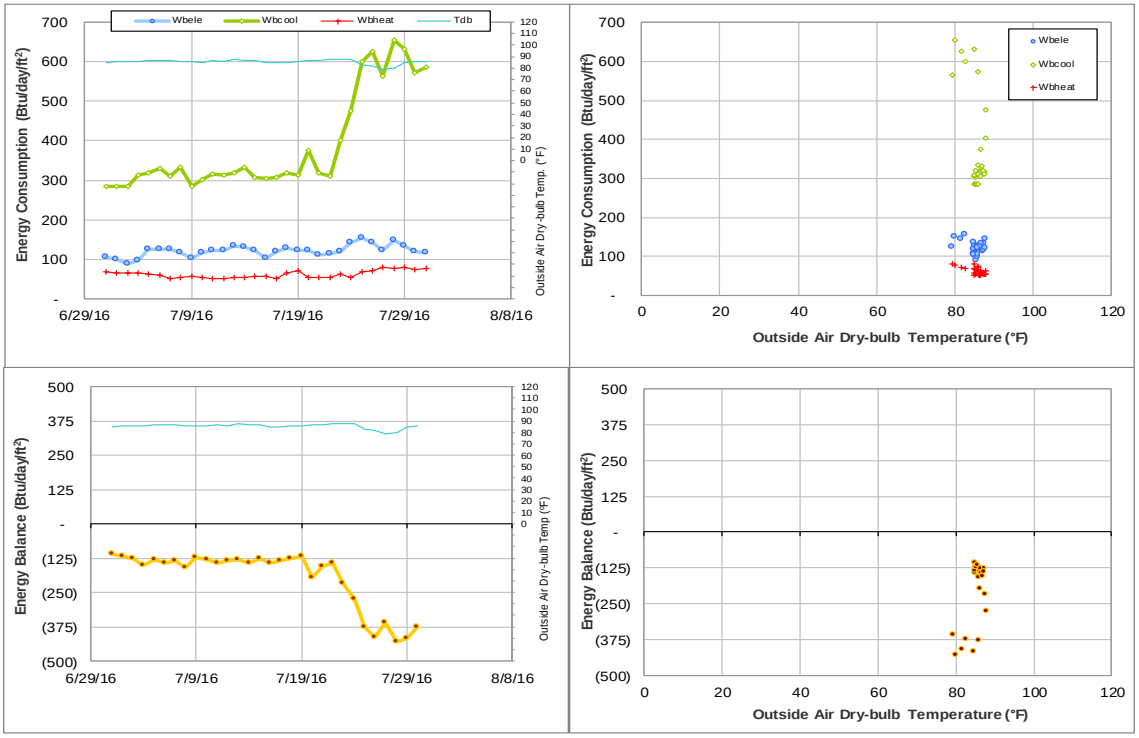


Figure IV-167 Reed Arena TAMU BLDG # 1554 Energy Balance Plot during July 2016

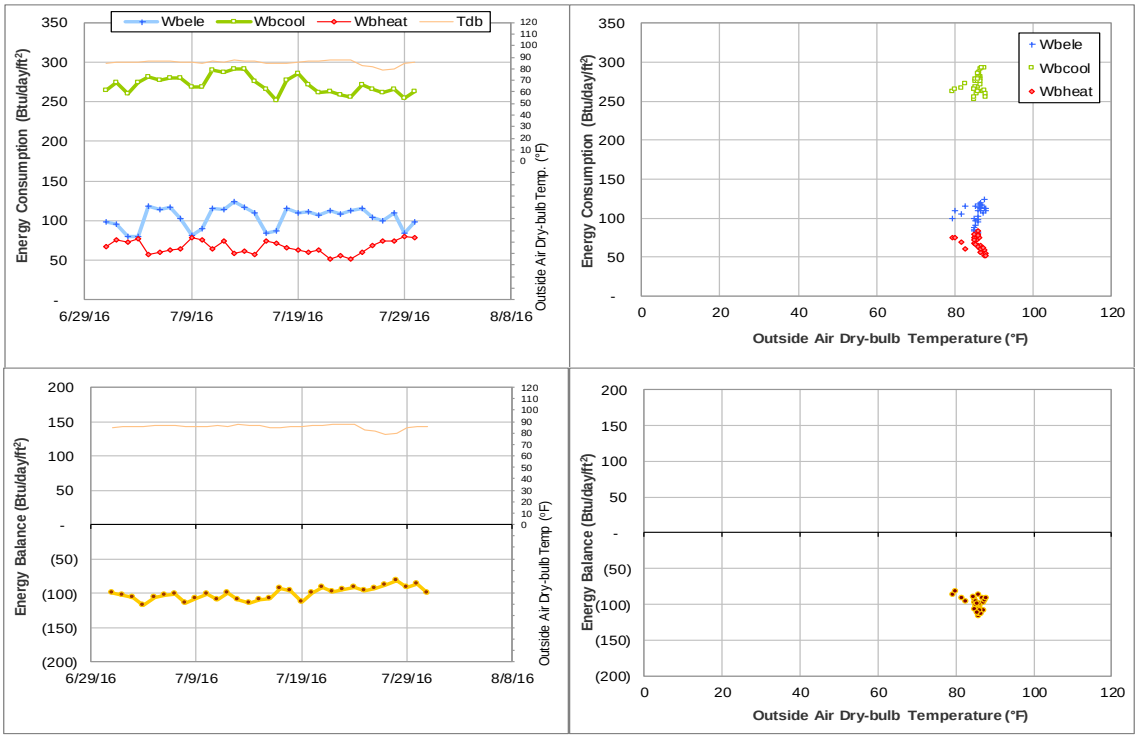


Figure IV-168 Cox-McFerrin Center for Aggie Basketball TAMU BLDG # 1558 Energy Balance Plot during July 2016

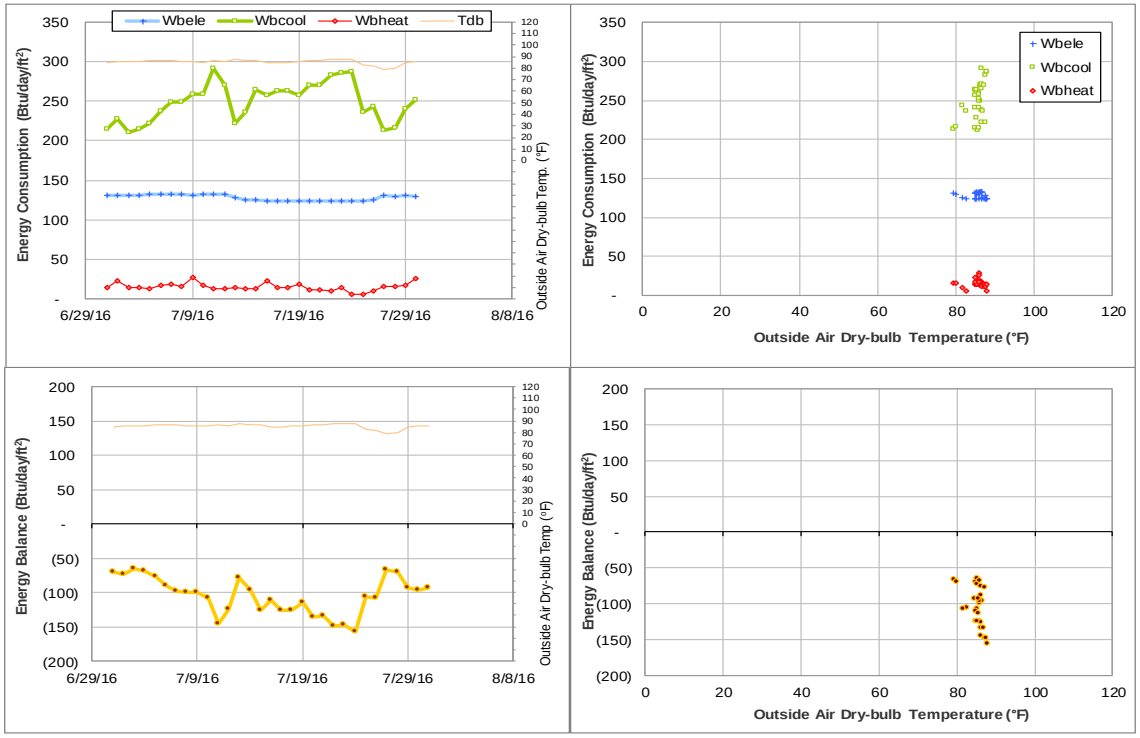


Figure IV-169 West Campus Parking Garage TAMU BLDG # 1559 Energy Balance Plot during July 2016

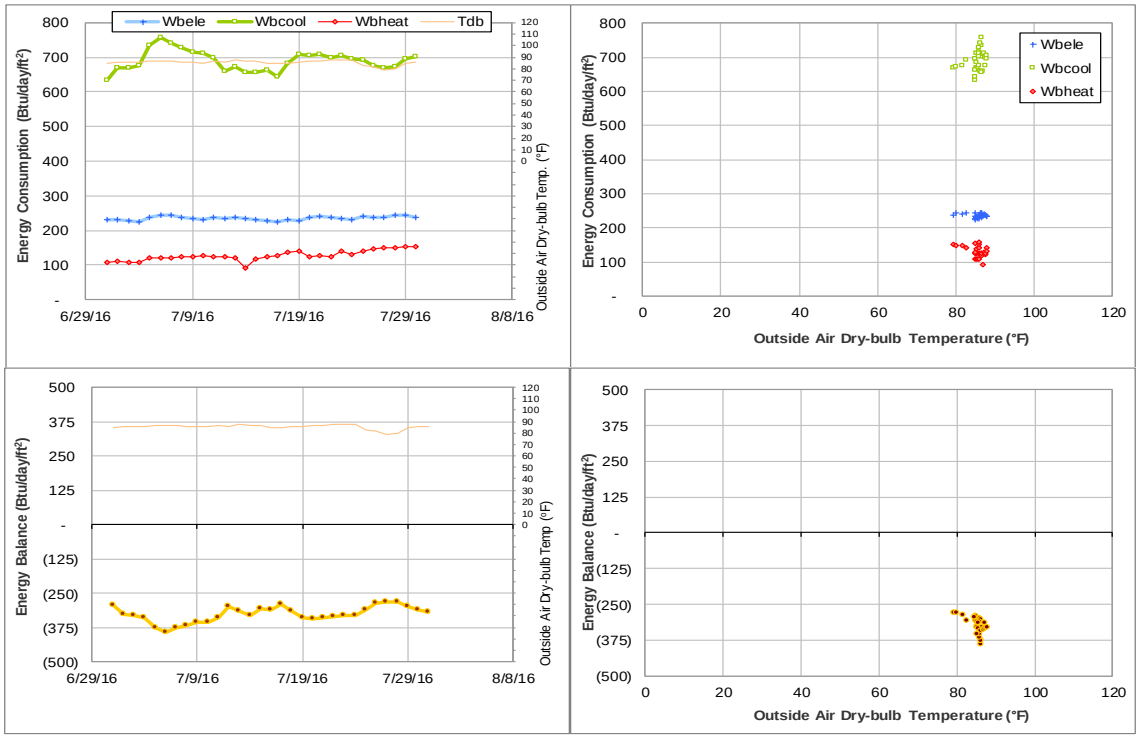


Figure IV-170 Student Recreation Center TAMU BLDG # 1560 Energy Balance Plot during July 2016

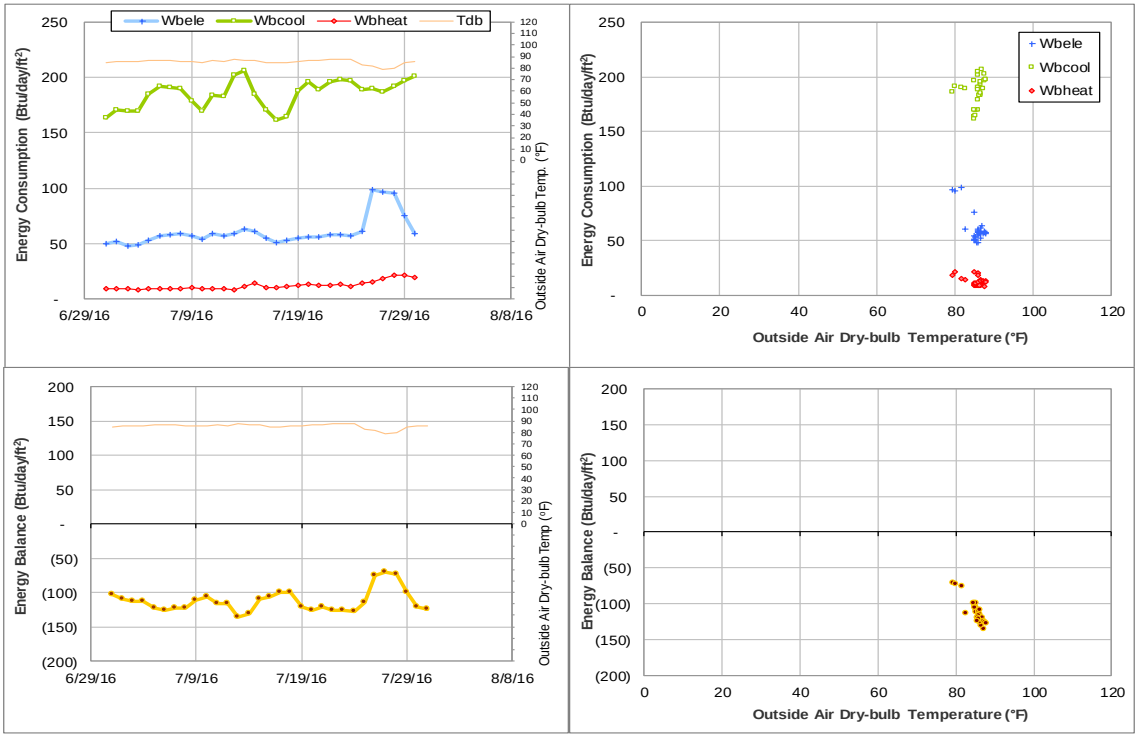


Figure IV-171 White Creek Apartment 1 and White Creek Apts Activity Center TAMU BLDG # 1589 and 1590 Energy Balance Plot during July 2016

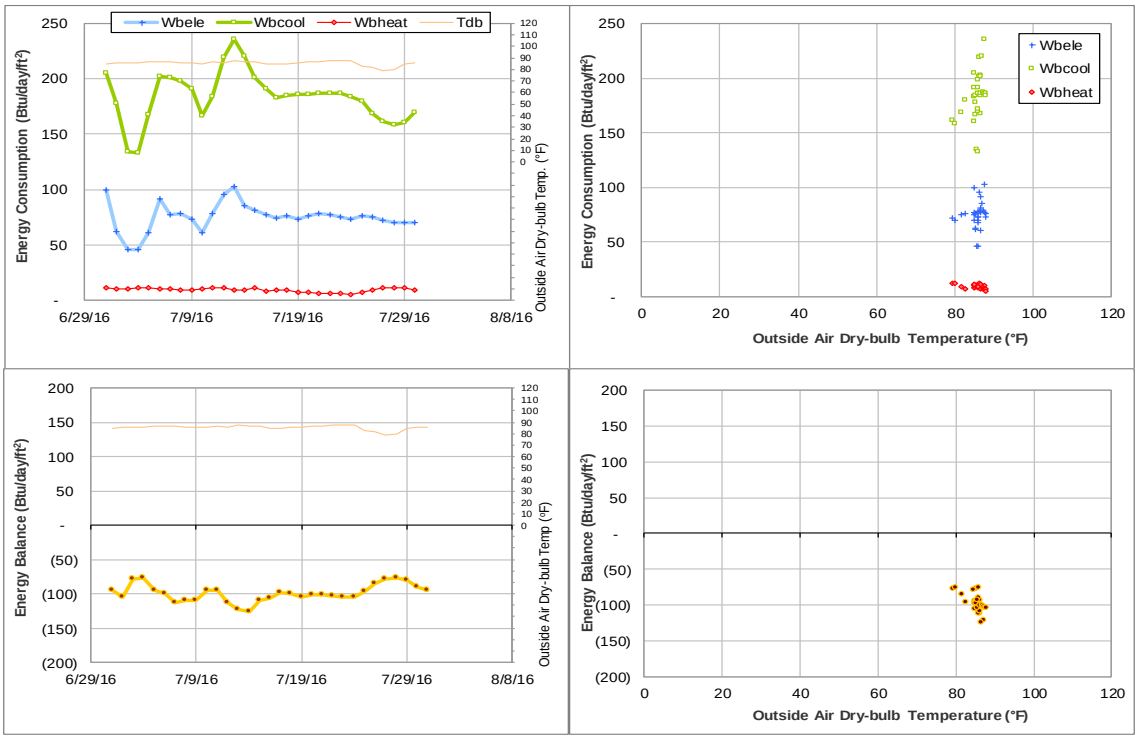


Figure IV-172 White Creek Apartment 2 TAMU BLDG # 1591 Energy Balance Plot during July 2016

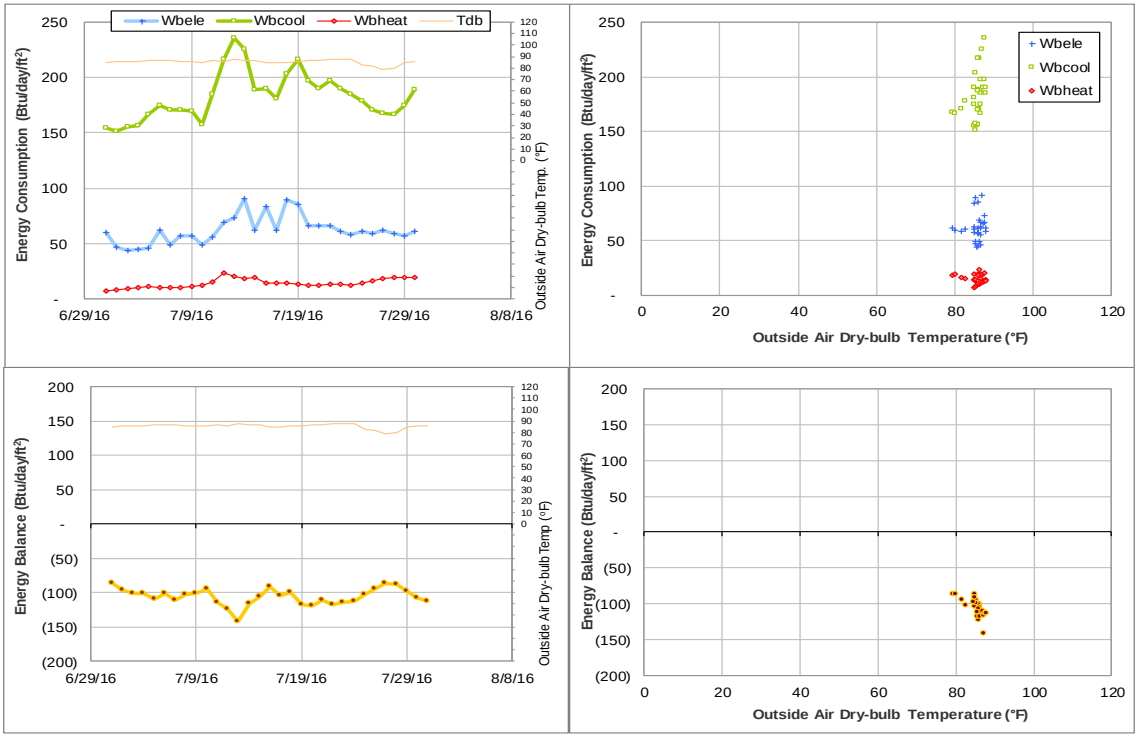


Figure IV-173 White Creek Apartment 3 TAMU BLDG # 1592 Energy Balance Plot during July 2016

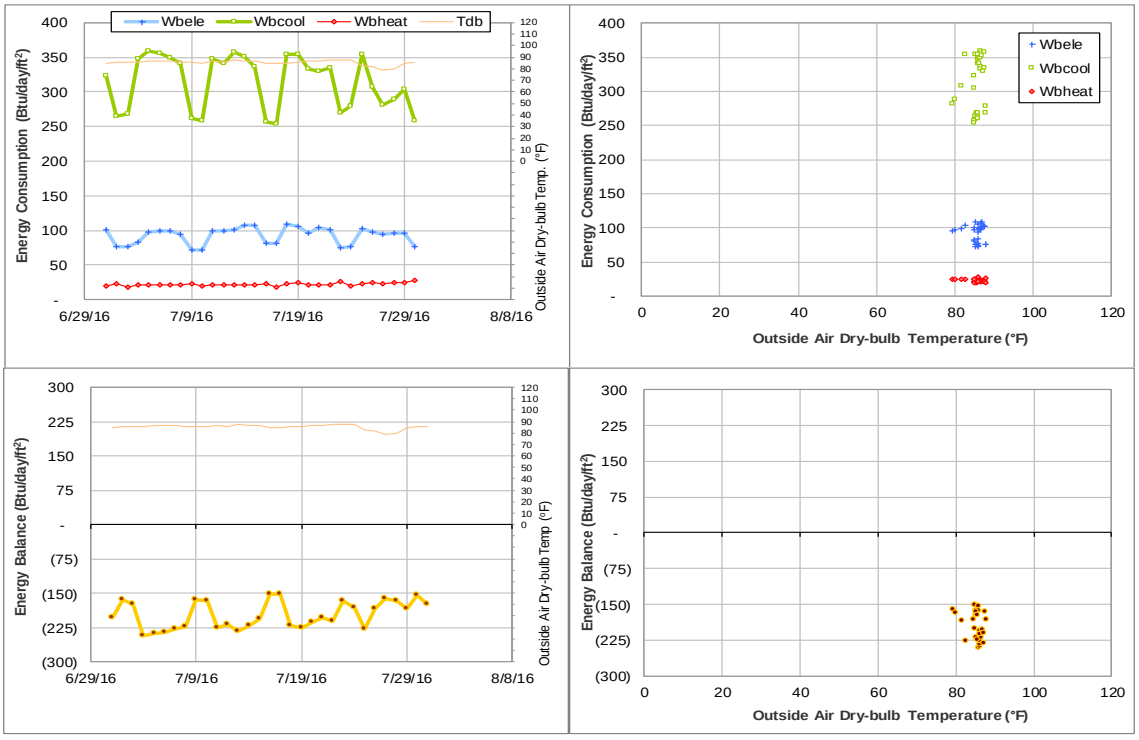


Figure IV-174 Gilchrist TTI Building TAMU BLDG # 1600 Energy Balance Plot during July 2016

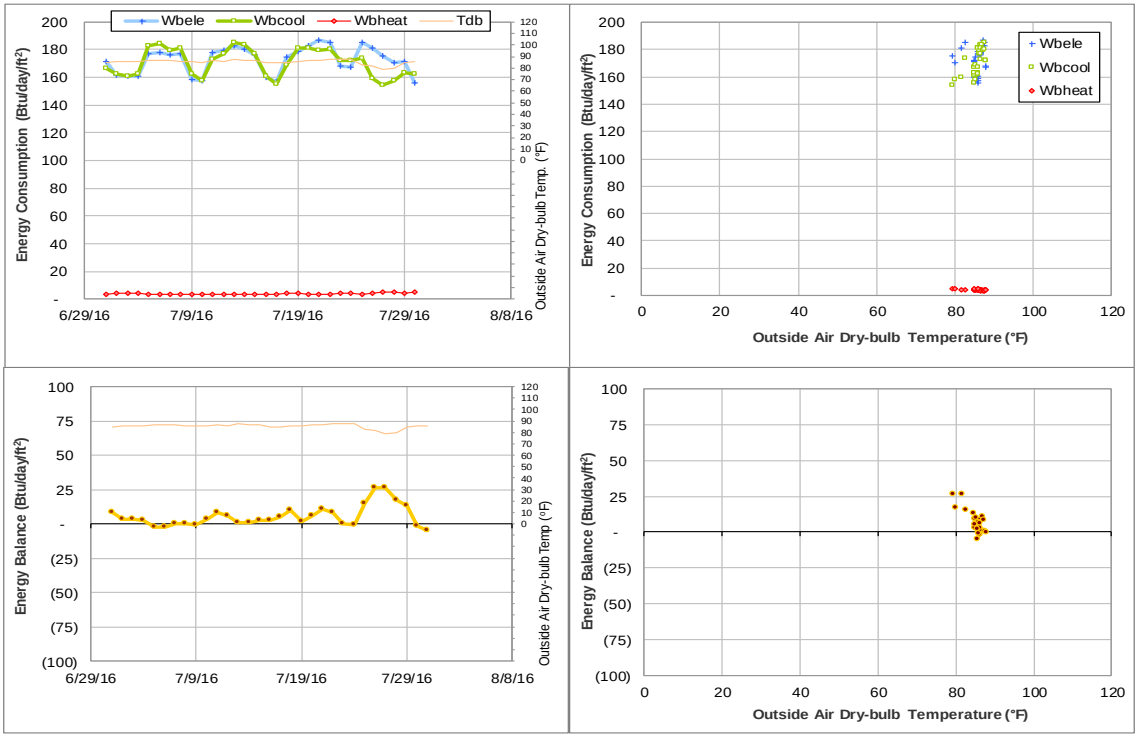


Figure IV-175 International Ocean Discovery Building TAMU BLDG # 1601 Energy Balance Plot during July 2016

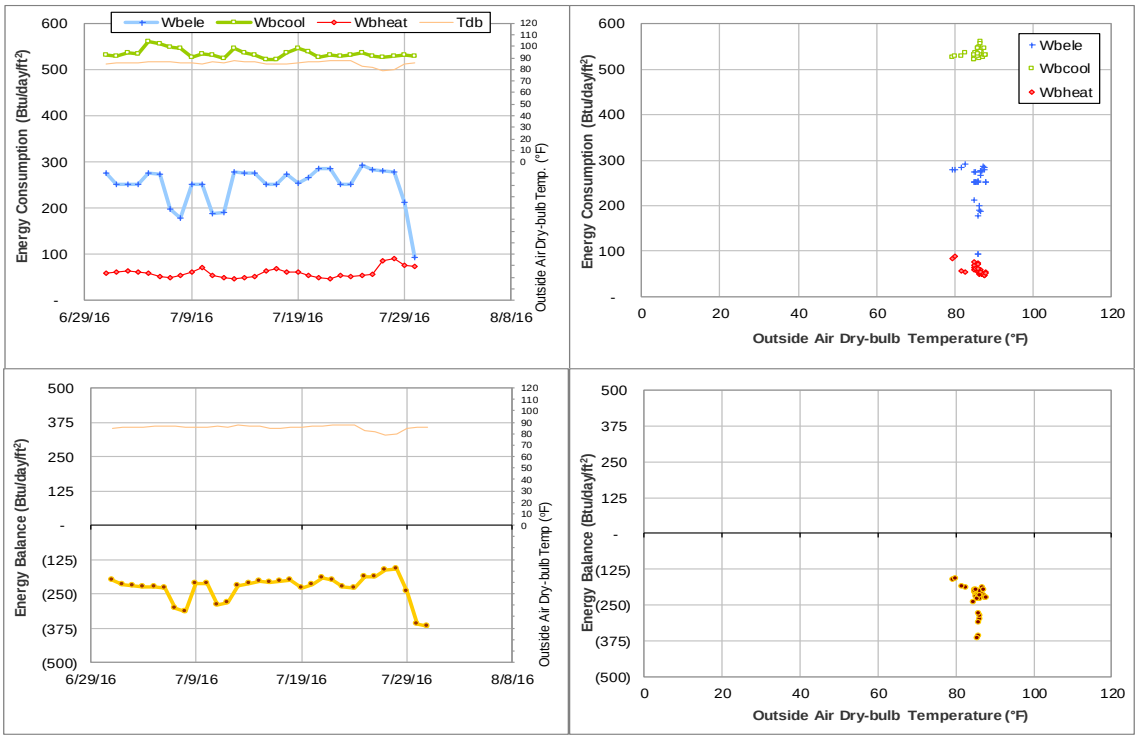


Figure IV-176 Offshore Technology Research Center TAMU BLDG # 1604 Energy Balance Plot during July 2016

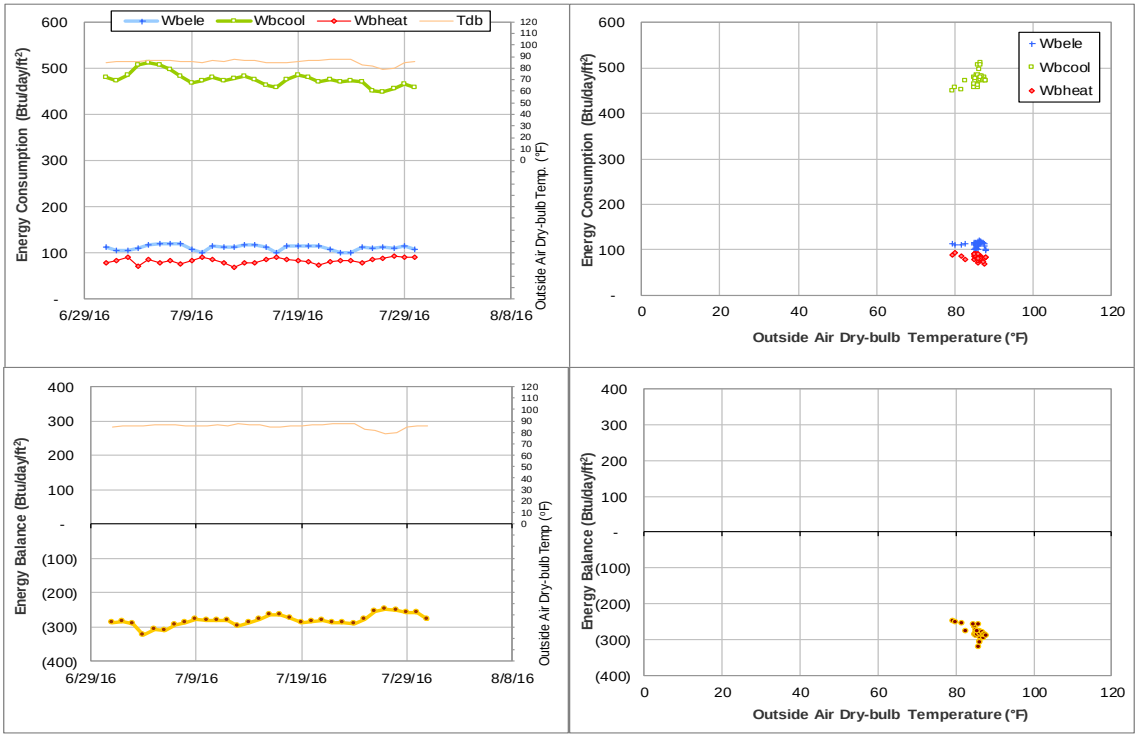


Figure IV-177 George Bush Presidential Library & Museum TAMU BLDG # 1606 Energy Balance Plot during July 2016

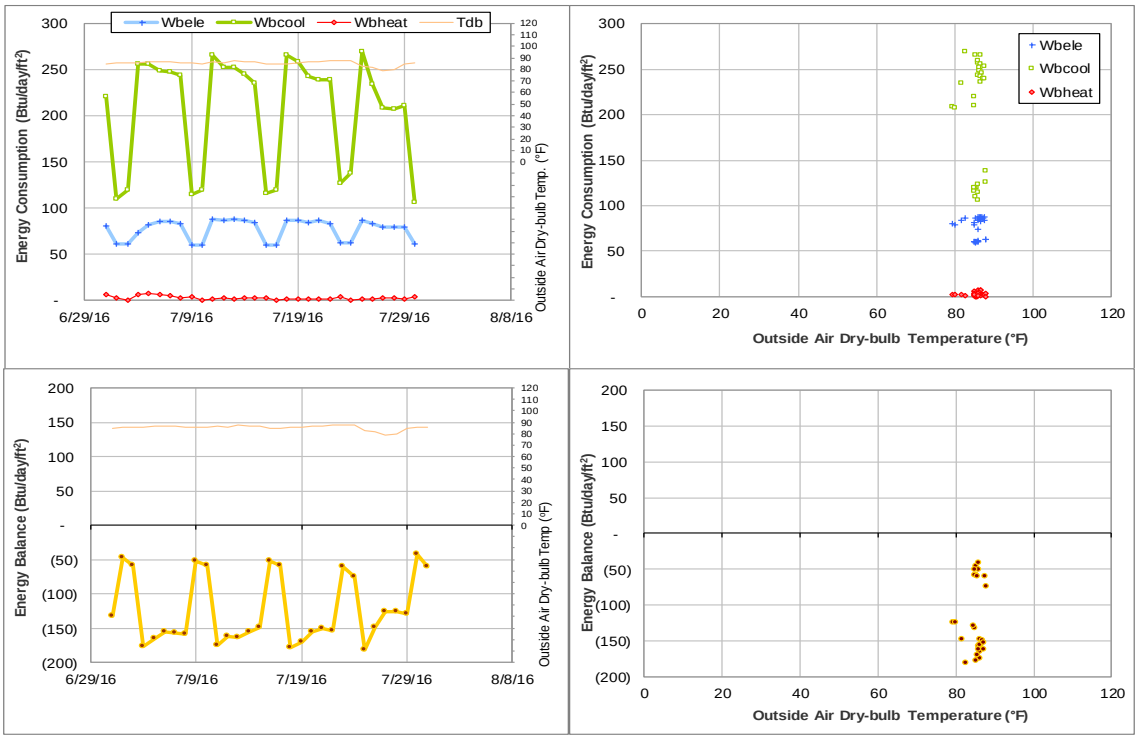


Figure IV-178 Allen Building TAMU BLDG # 1607 Energy Balance Plot during July 2016

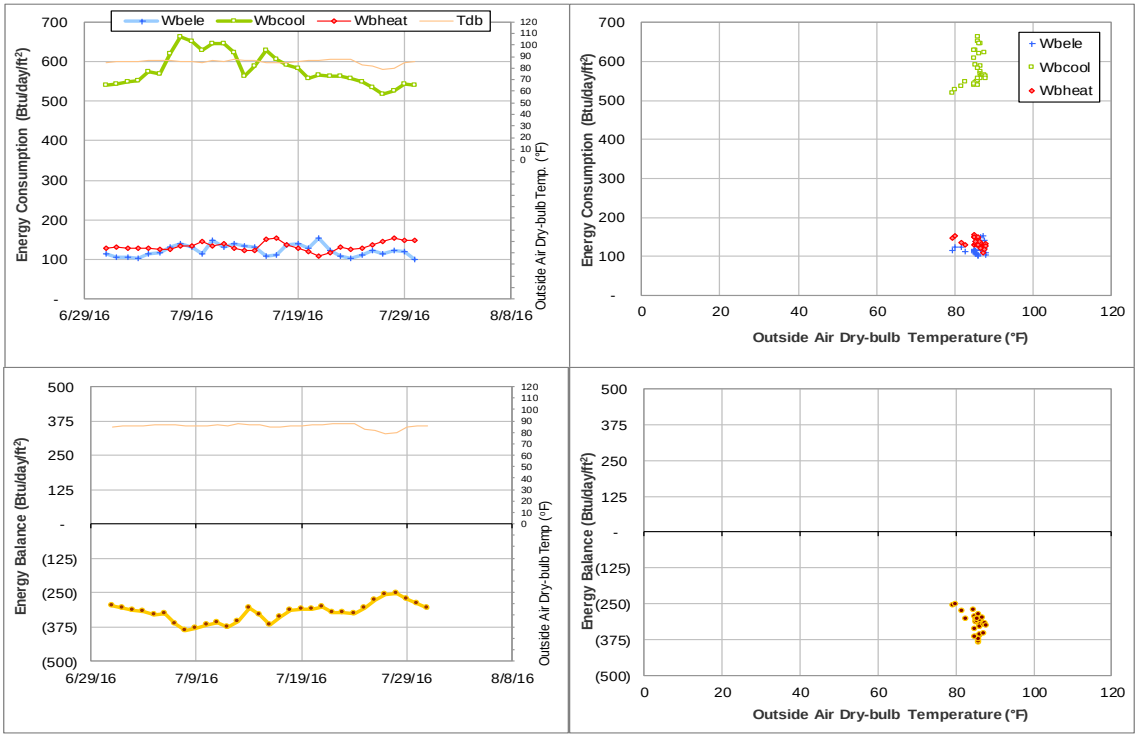


Figure IV-179 Annenberg Presidential Conference Center TAMU BLDG # 1608 Energy Balance Plot during July 2016

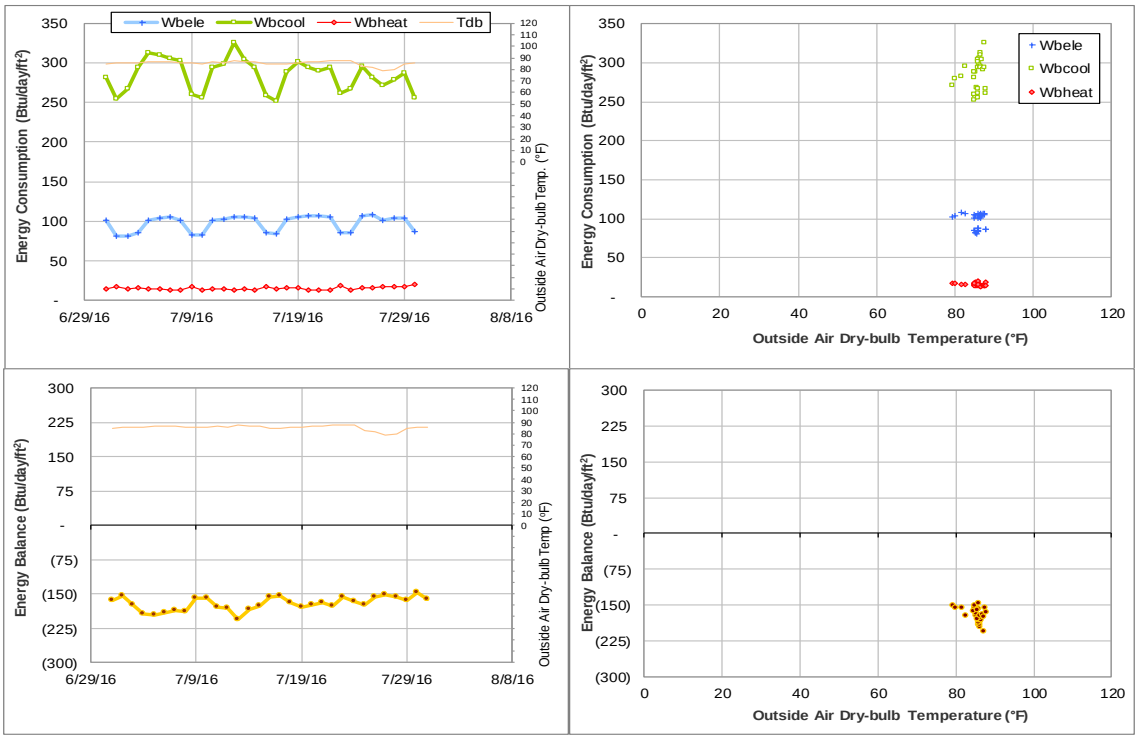


Figure IV-180 TTI Headquarters TAMU BLDG # 1609 Energy Balance Plot during July 2016

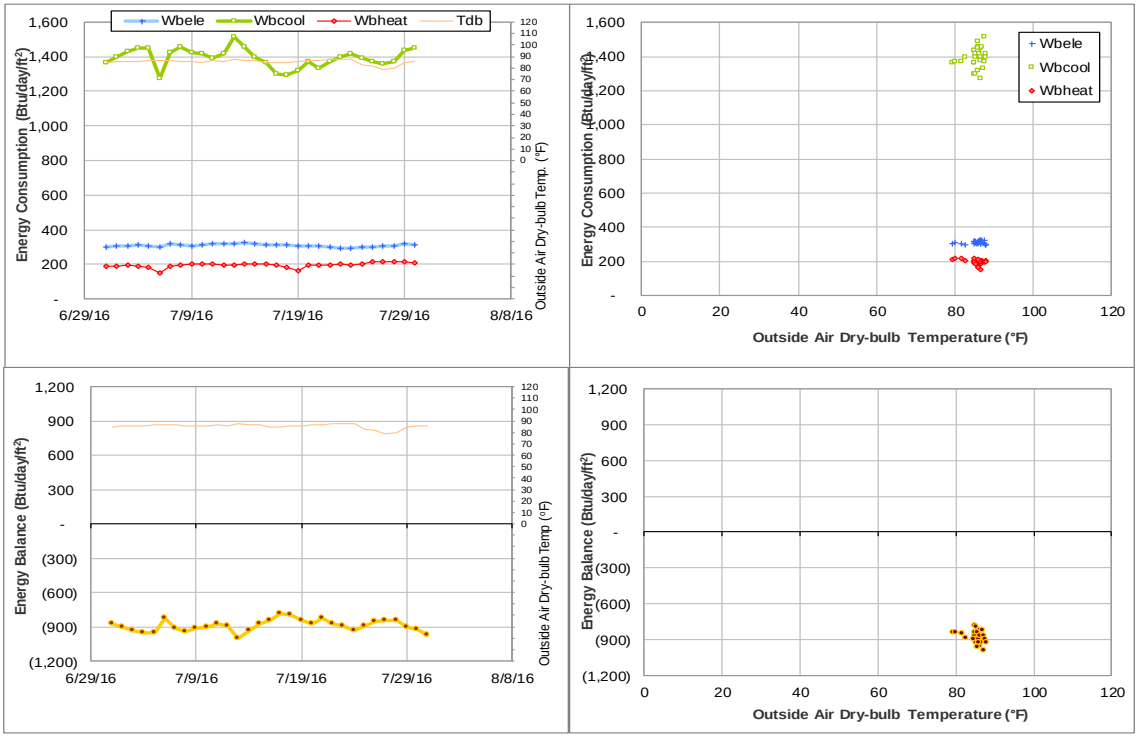


Figure IV-181 Engineering Research Building TAMU BLDG # 1611 Energy Balance Plot during July 2016

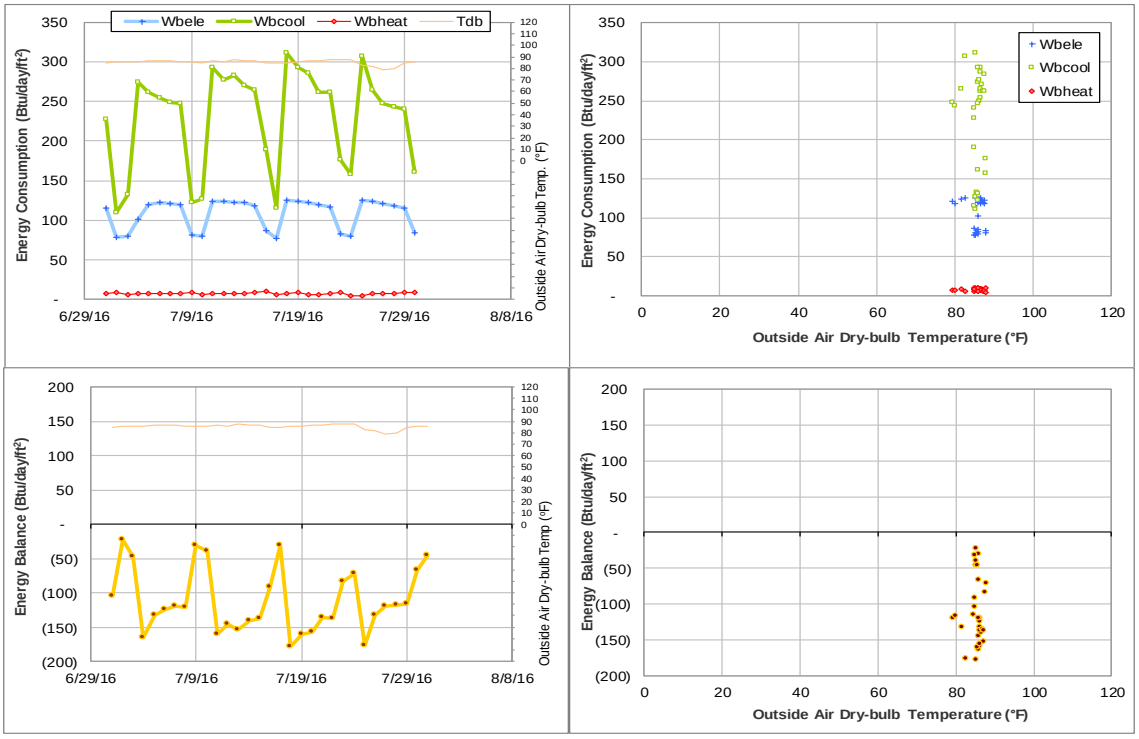


Figure IV-182 General Services Complex TAMU BLDG # 1800 Energy Balance Plot during July 2016

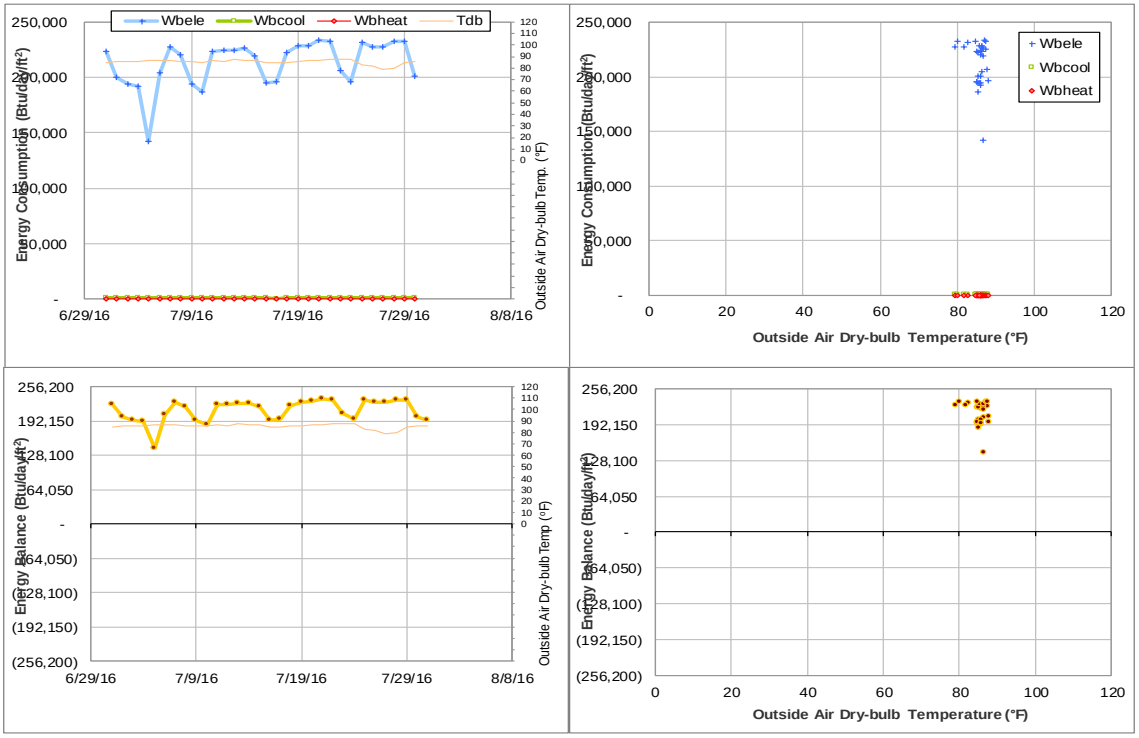


Figure IV-183 Office of the State Chemist Building TAMU BLDG # 1810 Energy Balance Plot during July 2016

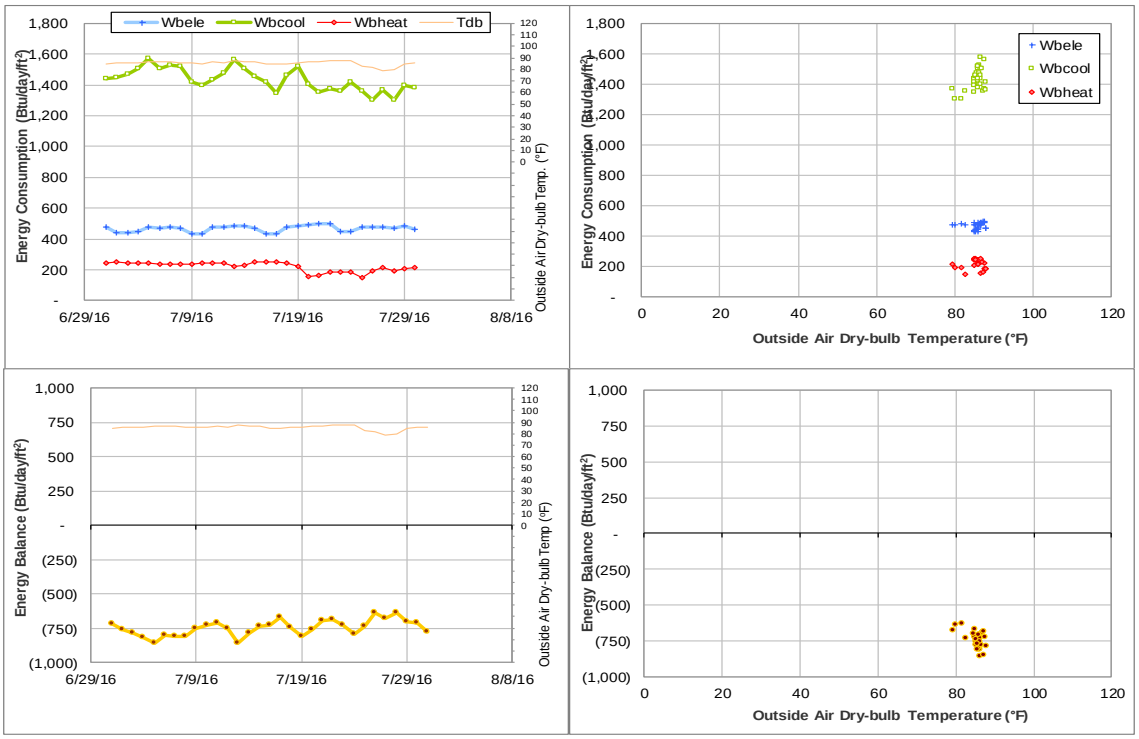


Figure IV-184 Vet Med Research Bldg Addition TAMU BLDG # 1811 Energy Balance Plot during July 2016

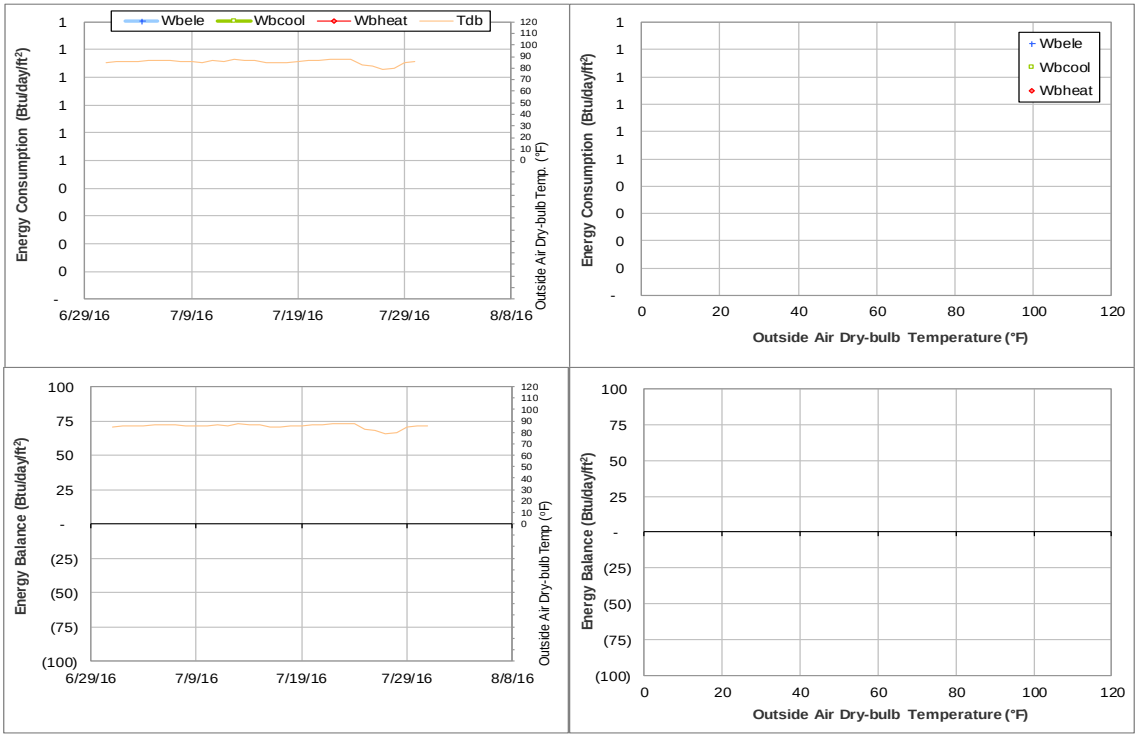


Figure IV-185 Skanksa Vet Complex TAMU BLDG # 1812-1813-1814 Energy Balance Plot during July 2016

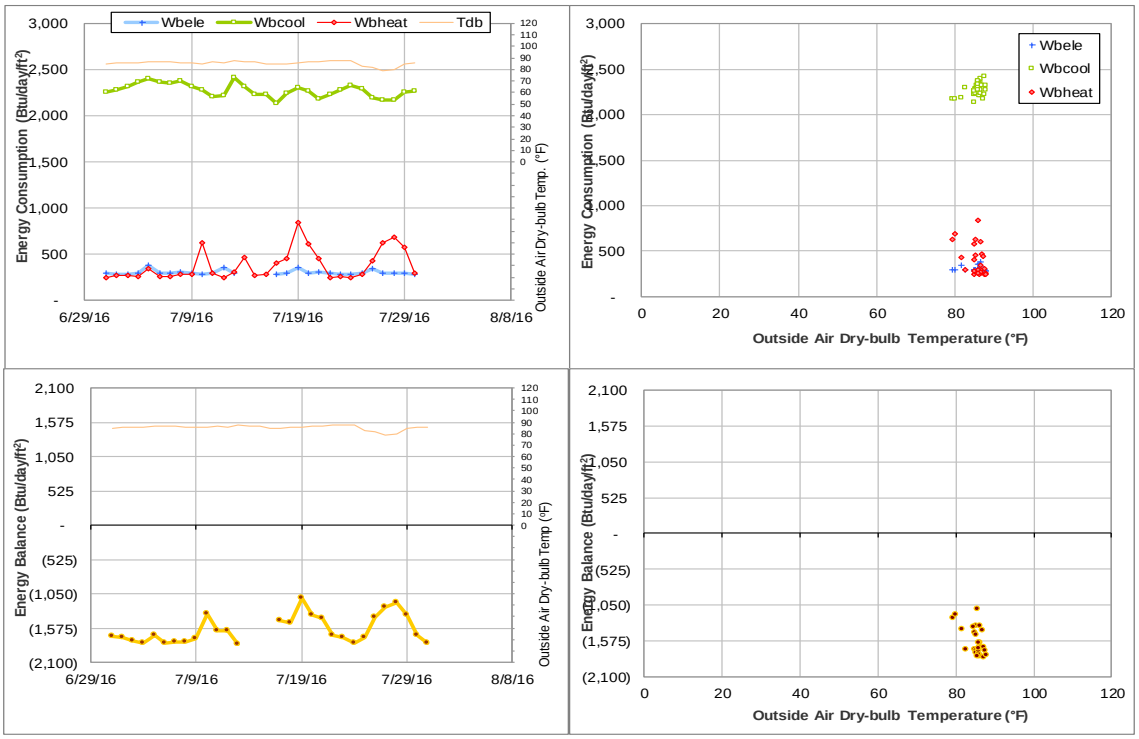


Figure IV-186 Texas Institute for Genomic Medicine TAMU BLDG # 1900 Energy Balance Plot during July 2016

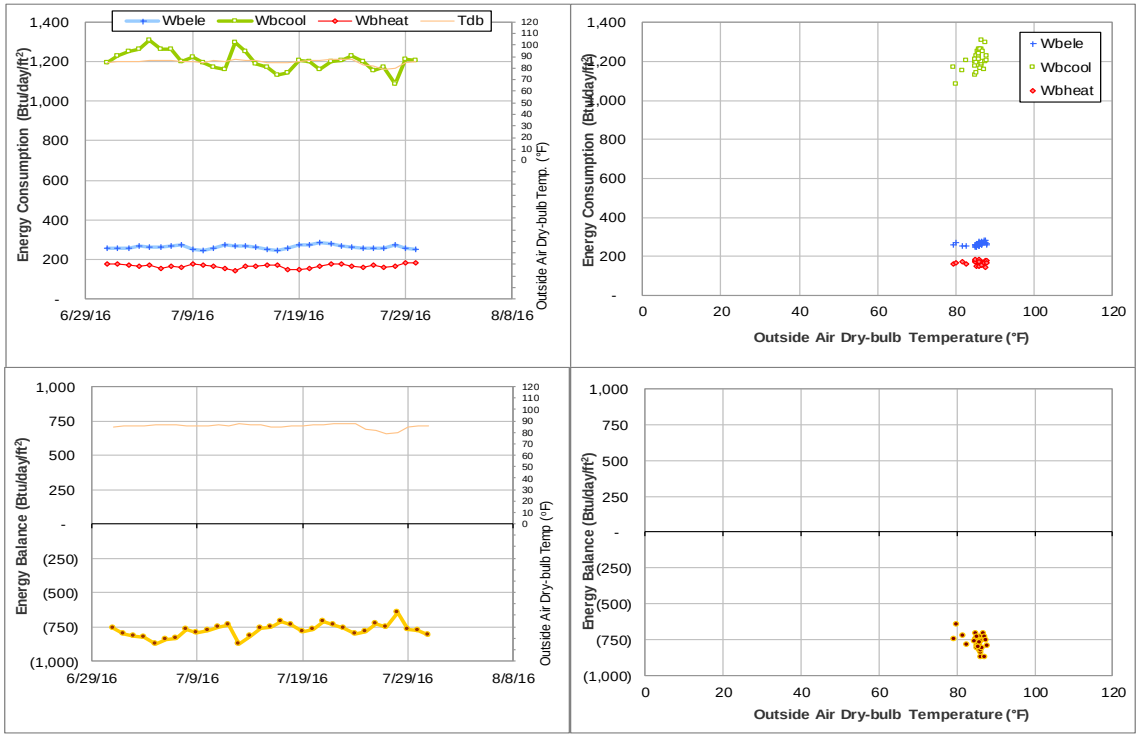


Figure IV-187 Texas A&M Institute for Preclinical Studies A TAMU BLDG # 1904 Energy Balance Plot during July 2016

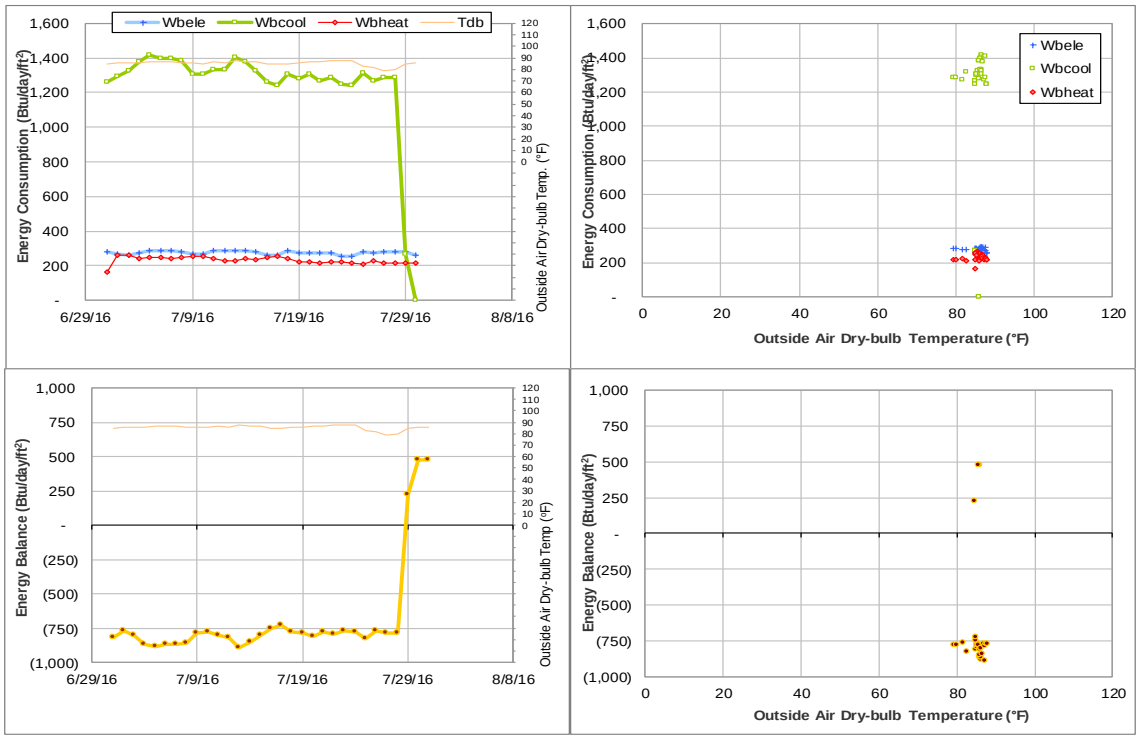


Figure IV-188 National Center for Therapeutics Manufacturing TAMU BLDG # 1910 Energy Balance Plot during July 2016

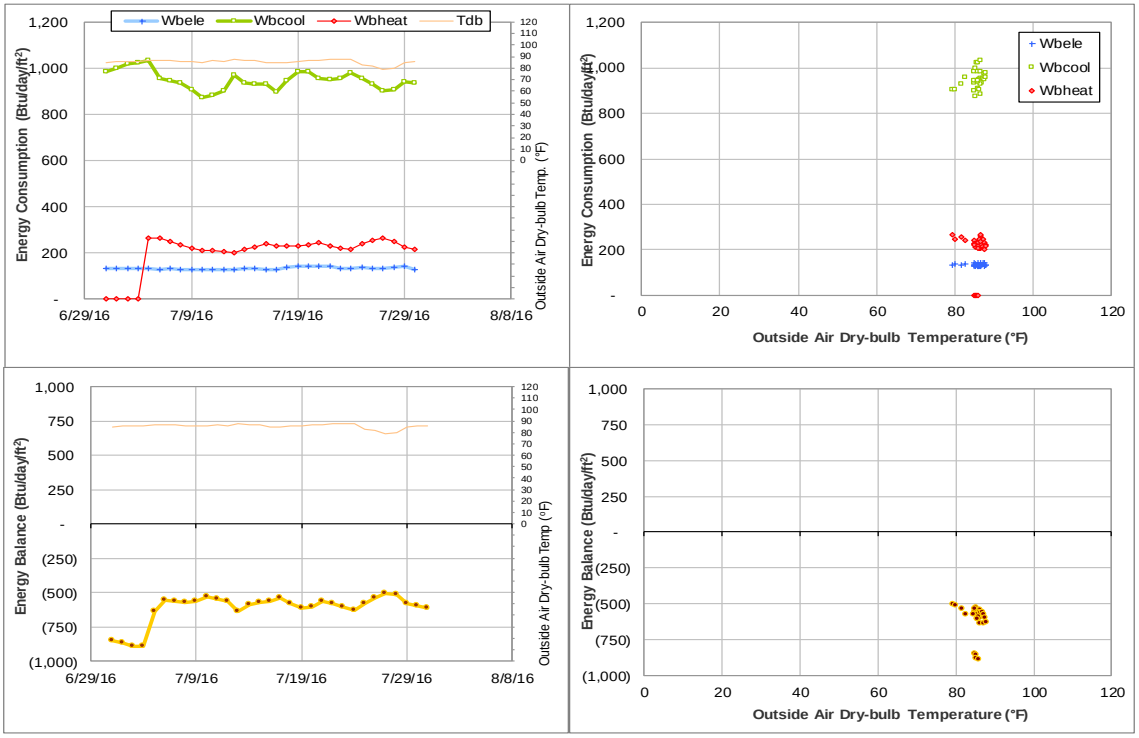


Figure IV-189 Multi-Species Research Building TAMU BLDG # 1911 Energy Balance Plot during July 2016

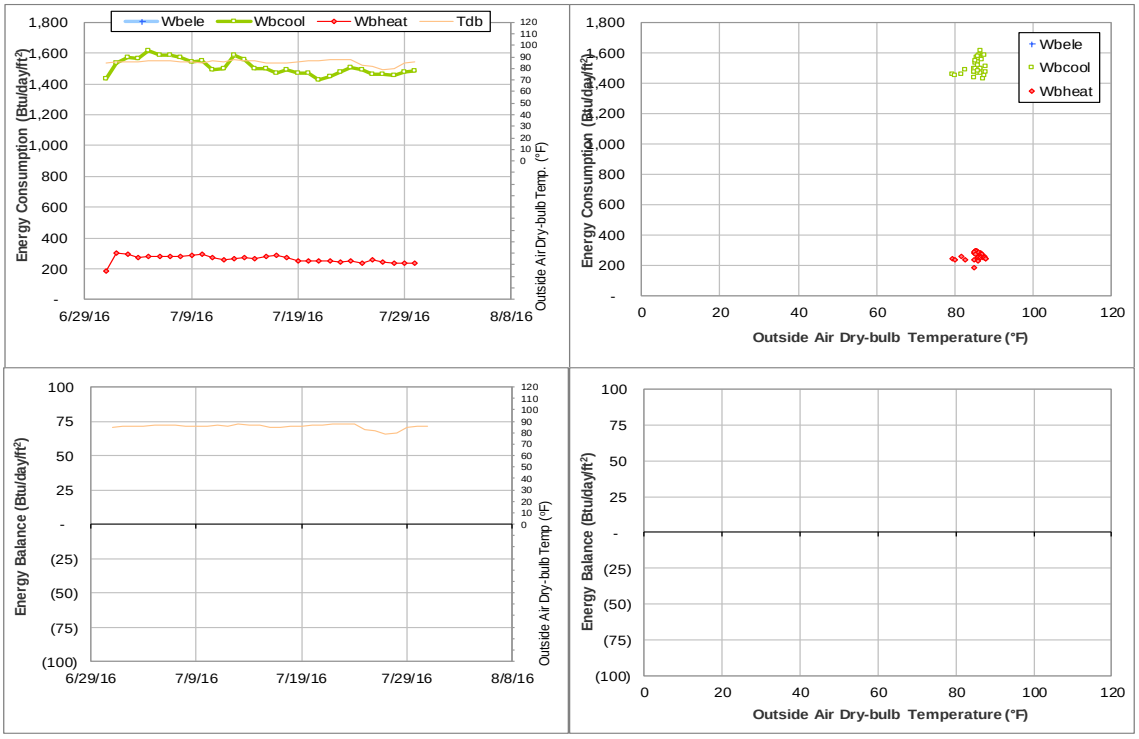


Figure IV-190 NCTM Manufacturing Building TAMU BLDG # 10226 Energy Balance Plot during July 2016

V. Energy Balance Plots with filled-in data for July 2016 Consumption

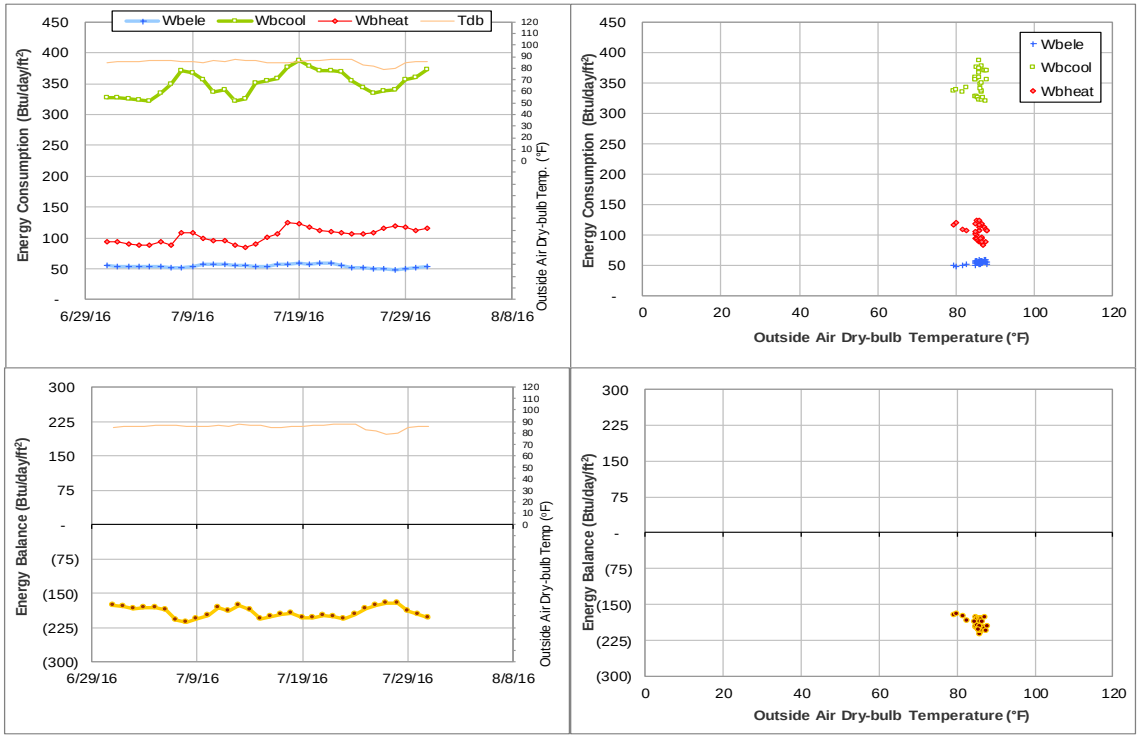


Figure V-1 Appelt Residence Hall TAMU BLDG # 293 Energy Balance Plot during July 2016

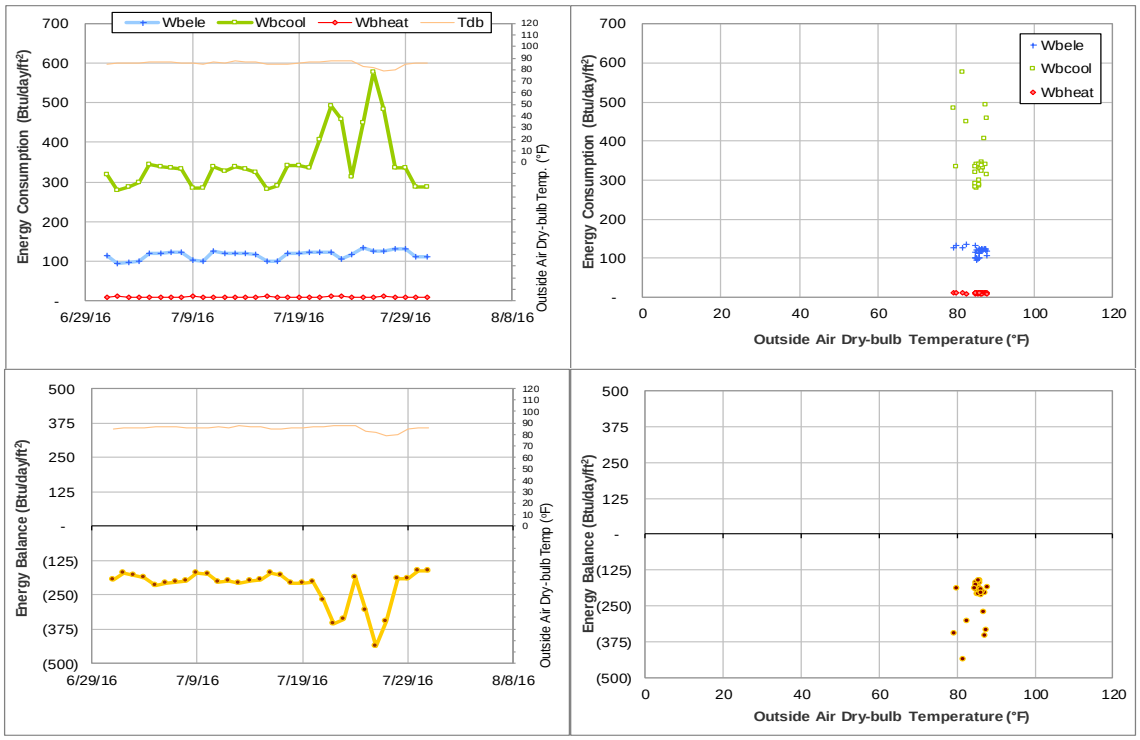


Figure V-2 Bright Aerospace Building TAMU BLDG # 353 Energy Balance Plot during July 2016

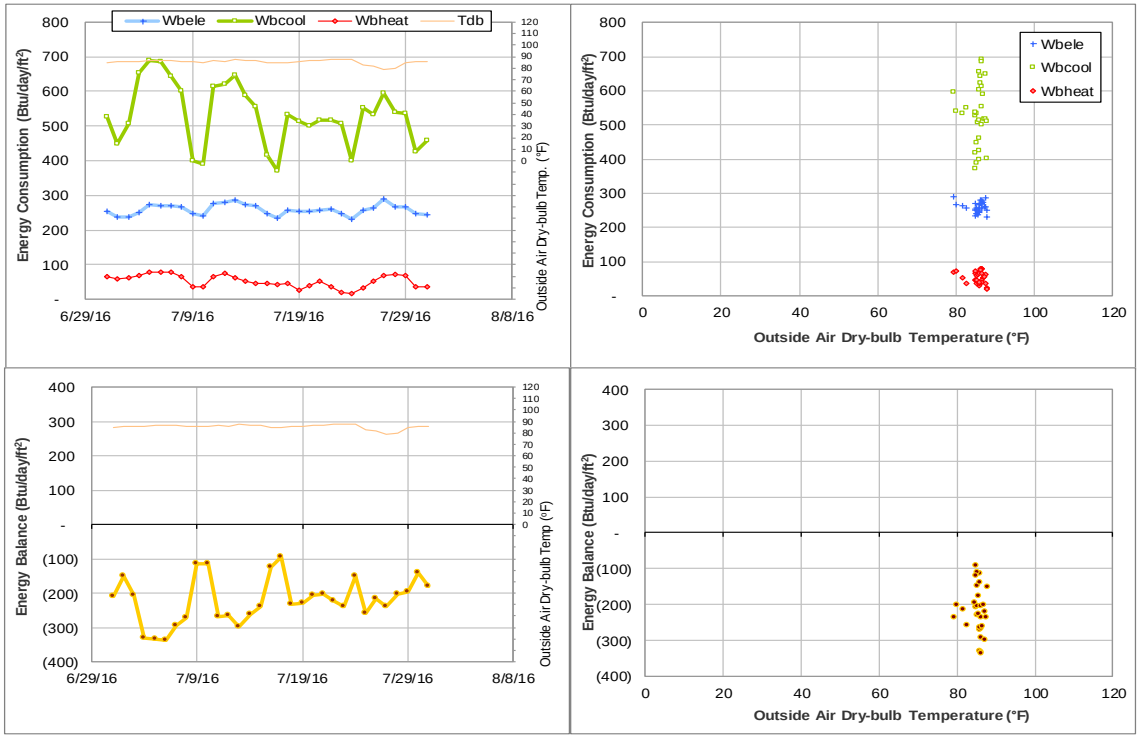


Figure V-3 Kyle Field TAMU BLDG # 367 Energy Balance Plot during July 2016

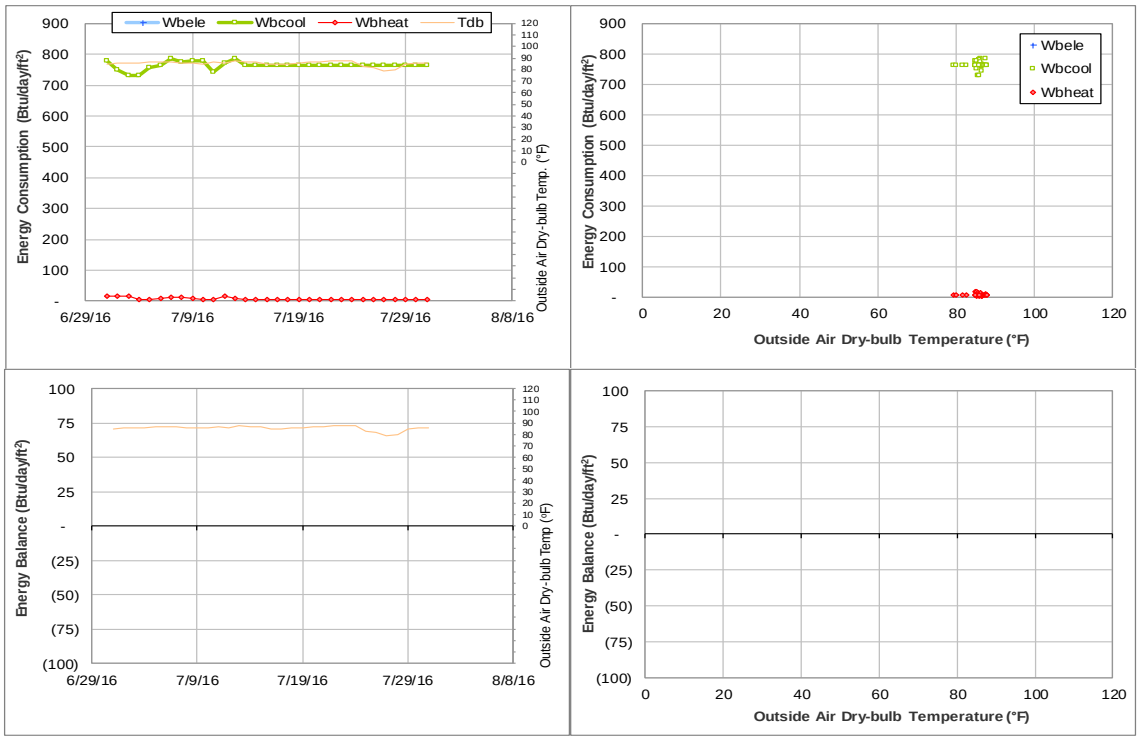


Figure V-4 CE TTI Office & Lab Building - Pi R Square TAMU BLDG # 385 Energy Balance Plot during July 2016

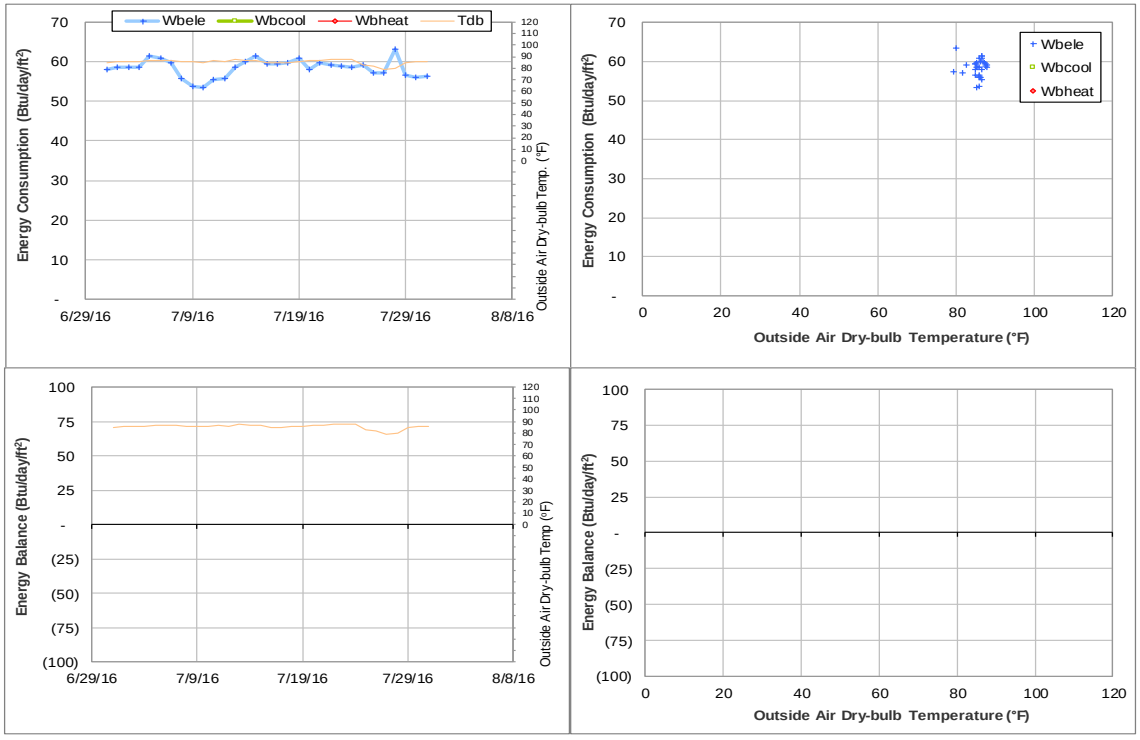


Figure V-5 Leonard Hall - Dorm 7 TAMU BLDG # 406 Energy Balance Plot during July 2016

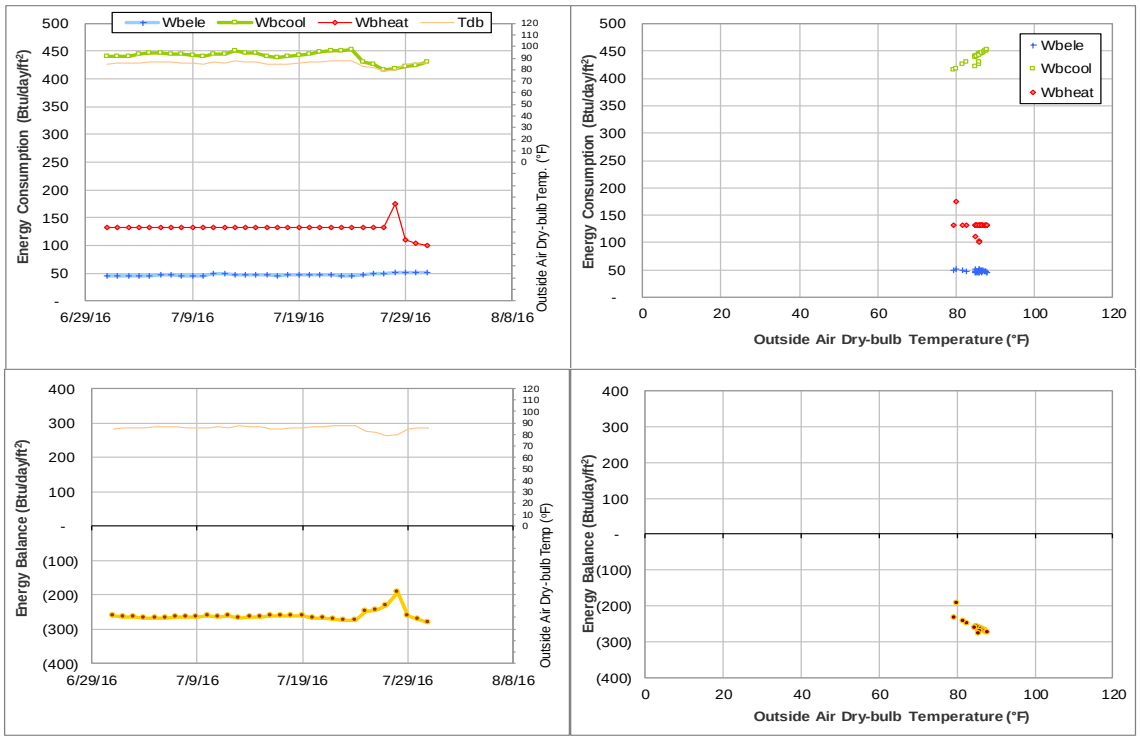


Figure V-6 Mosher Residence Hall TAMU BLDG # 433 Energy Balance Plot during July 2016

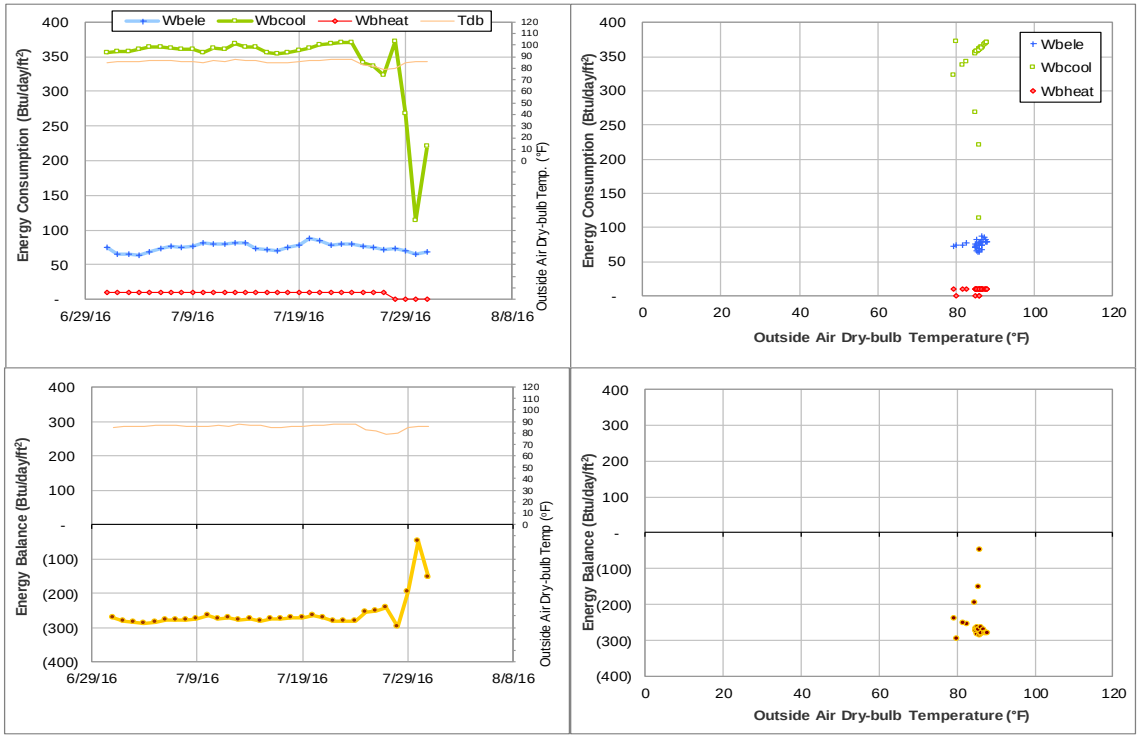


Figure V-7 Krueger Residence Hall TAMU BLDG # 441 Energy Balance Plot during July 2016

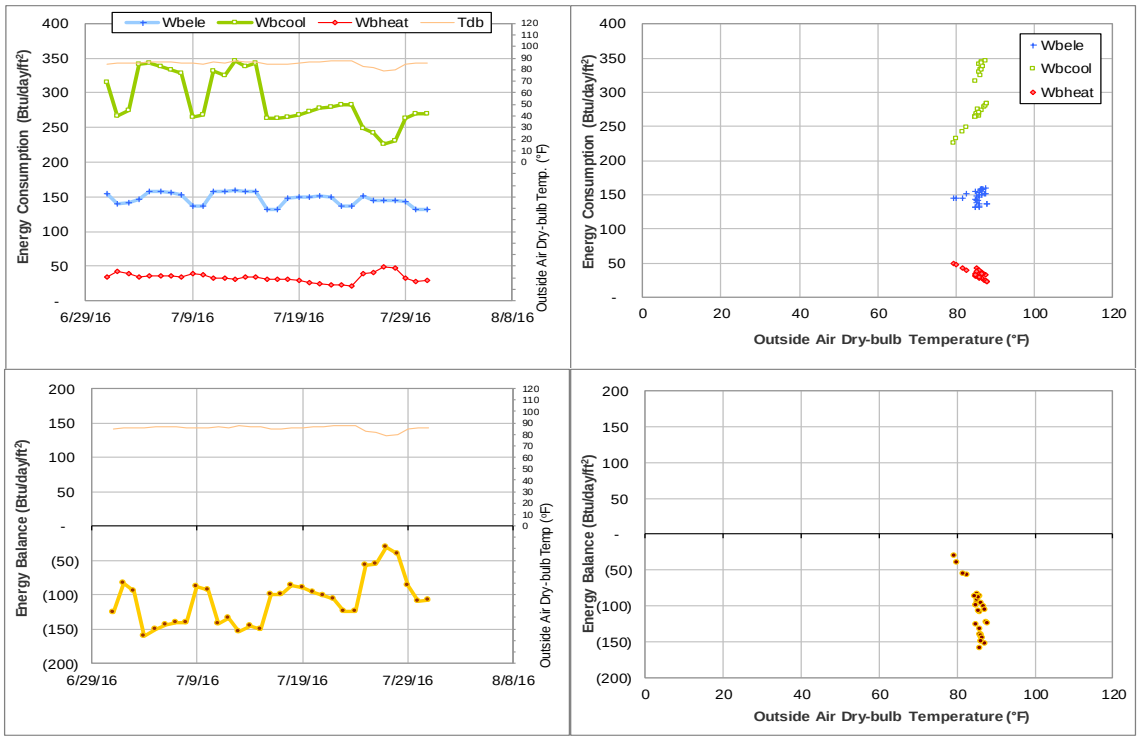


Figure V-8 Oceanography & Meteorology Building TAMU BLDG # 443 Energy Balance Plot during July 2016

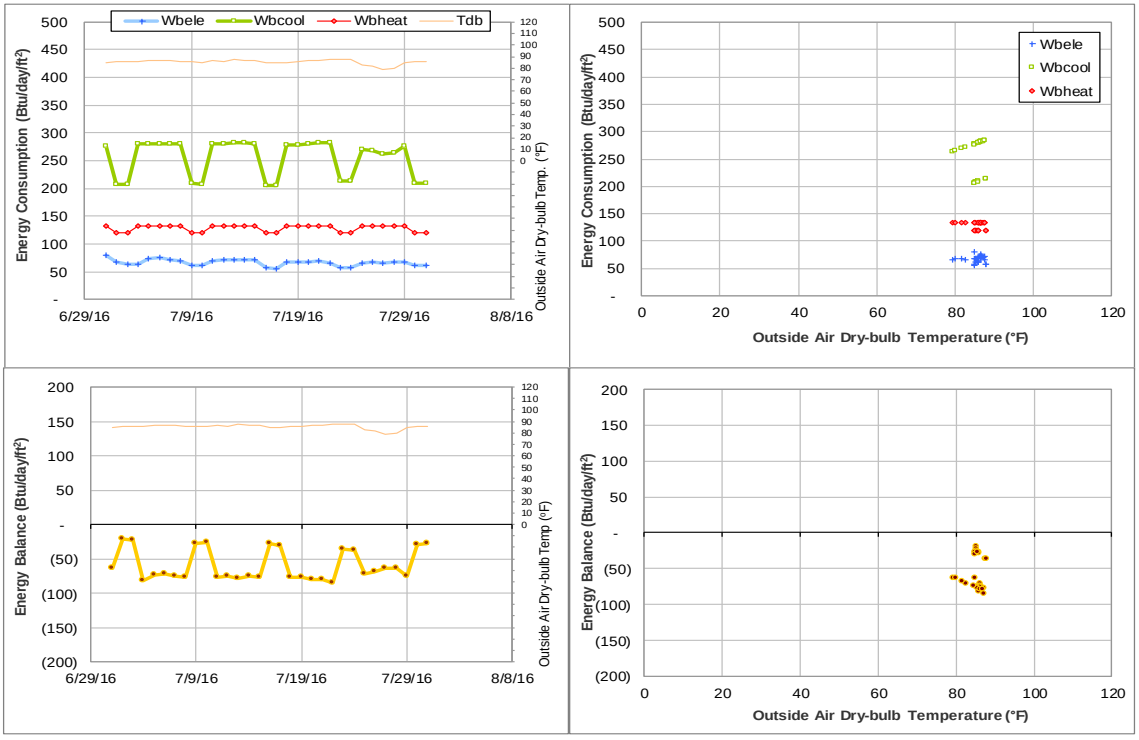


Figure V-9 Academic Building TAMU BLDG # 462 Energy Balance Plot during July 2016

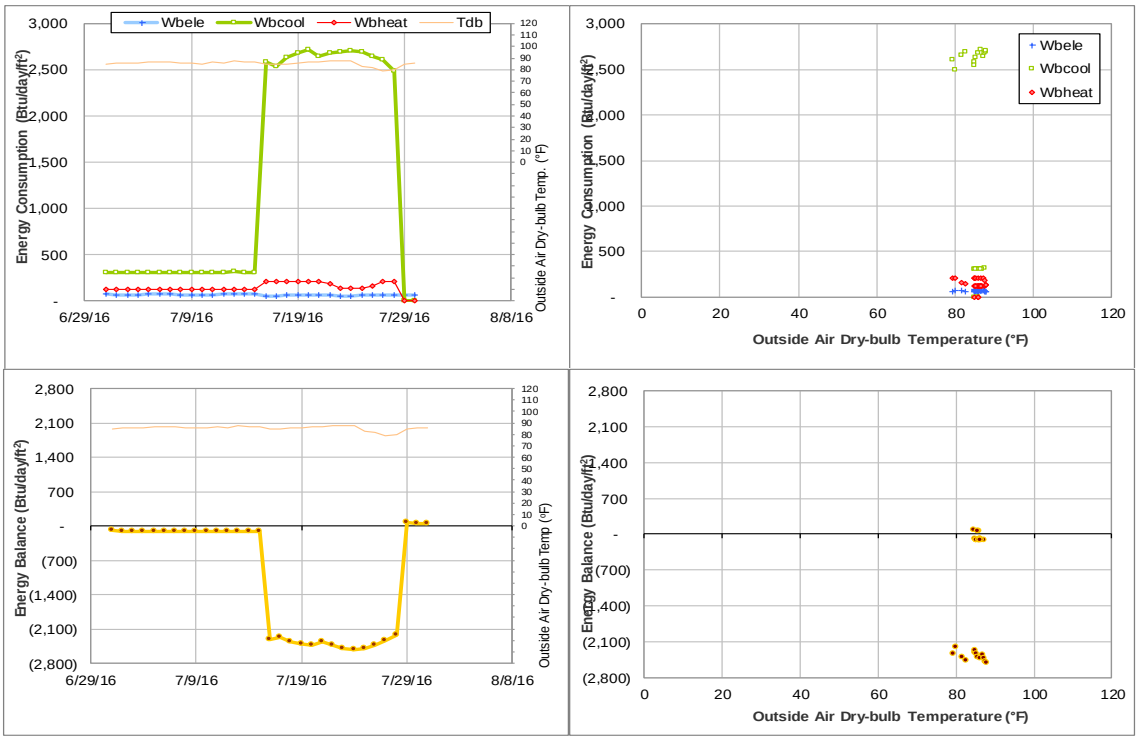


Figure V-10 Academic Building TAMU BLDG # 462 Energy Balance Plot during July 2016

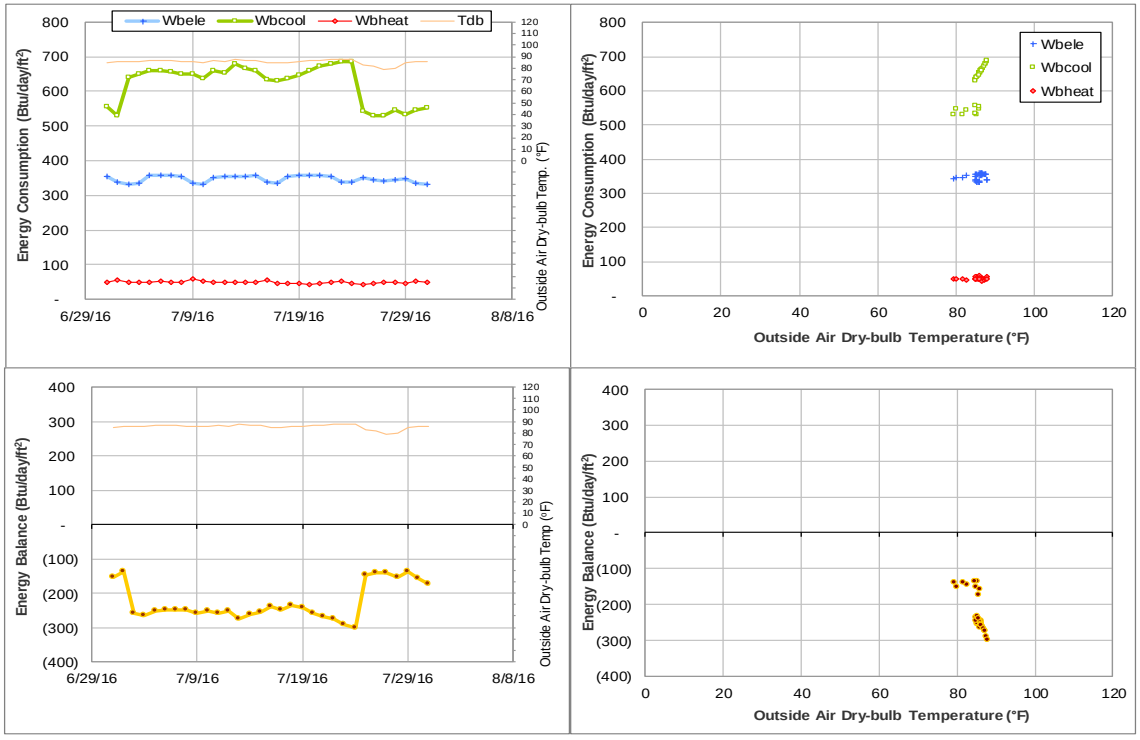


Figure V-11 Biological Sciences Building - East TAMU BLDG # 467 Energy Balance Plot during July 2016

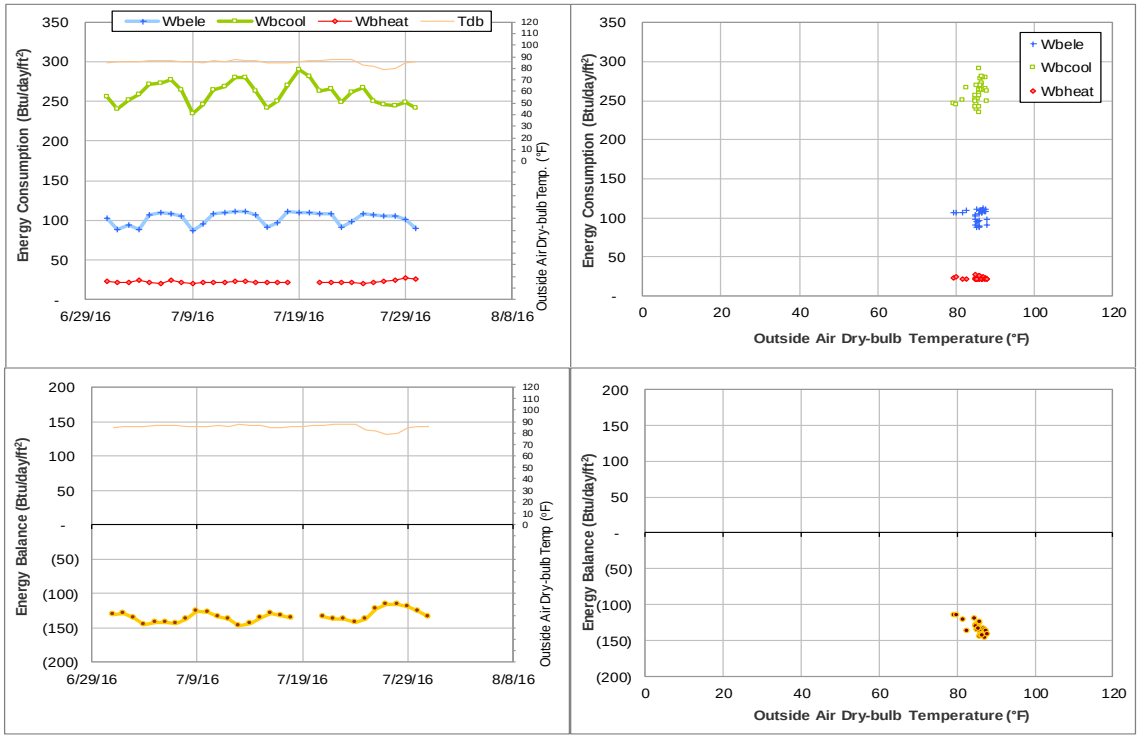


Figure V-12 Evans Library TAMU BLDG # 468 Energy Balance Plot during July 2016

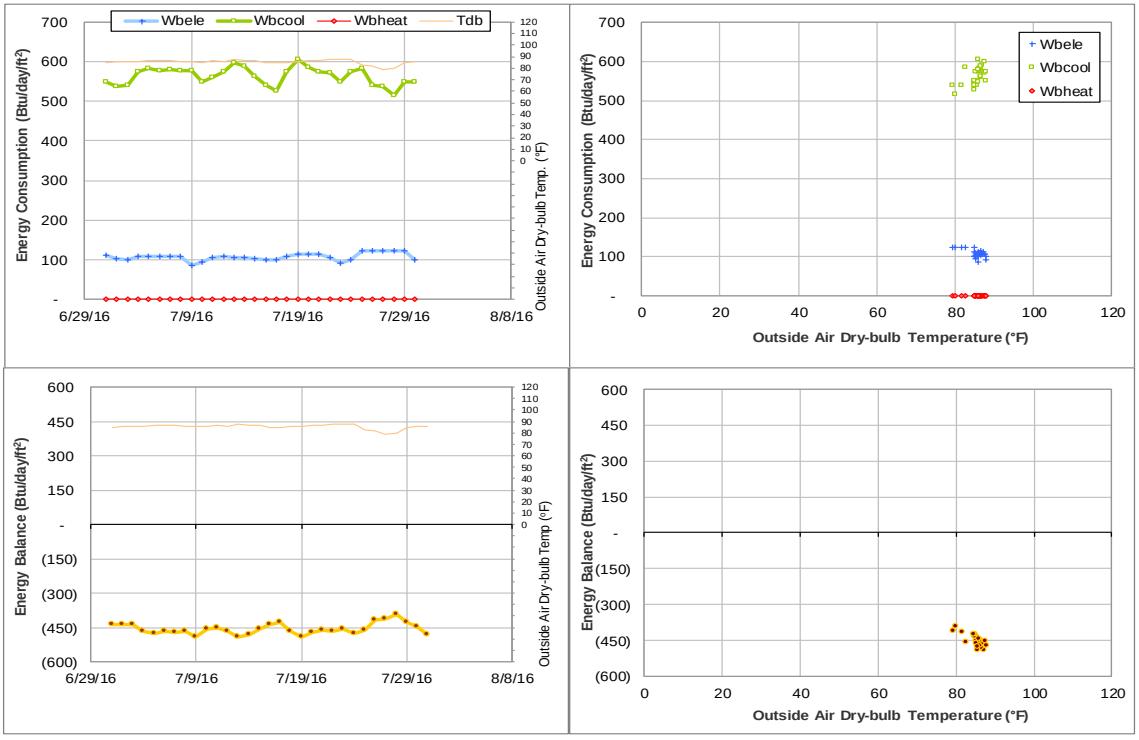


Figure V-13 Francis Hall TAMU BLDG # 476 Energy Balance Plot during July 2016

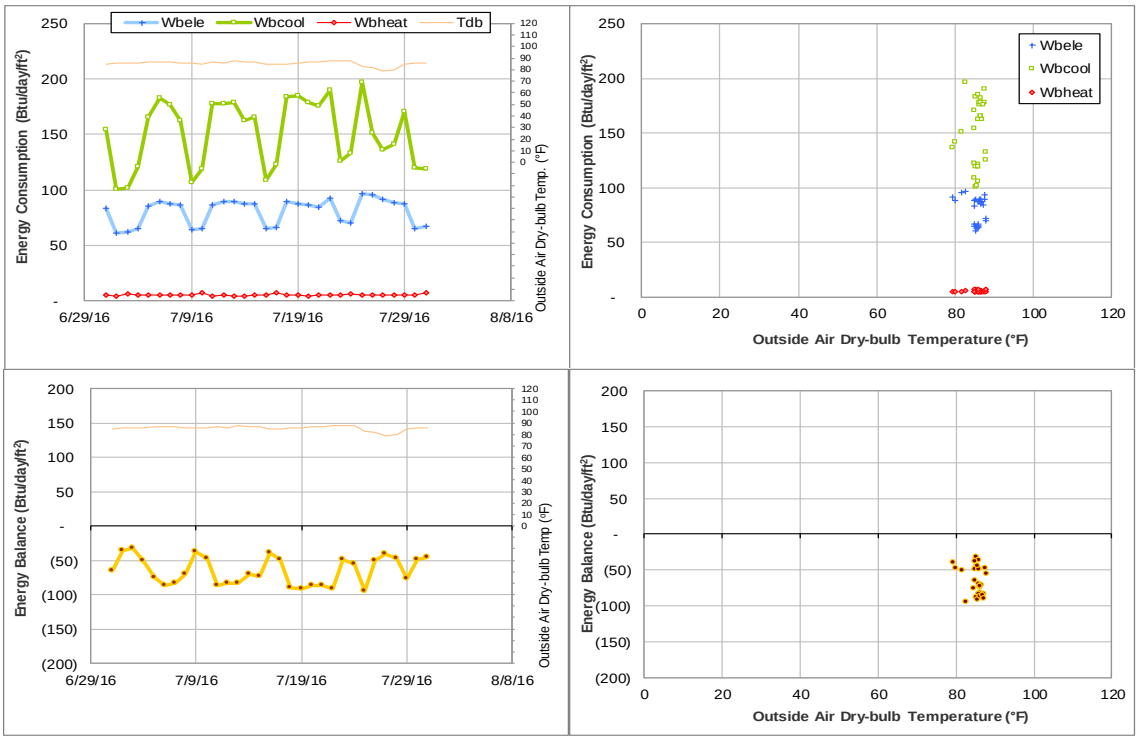


Figure V-14 Thompson Hall TAMU BLDG # 483 Energy Balance Plot during July 2016

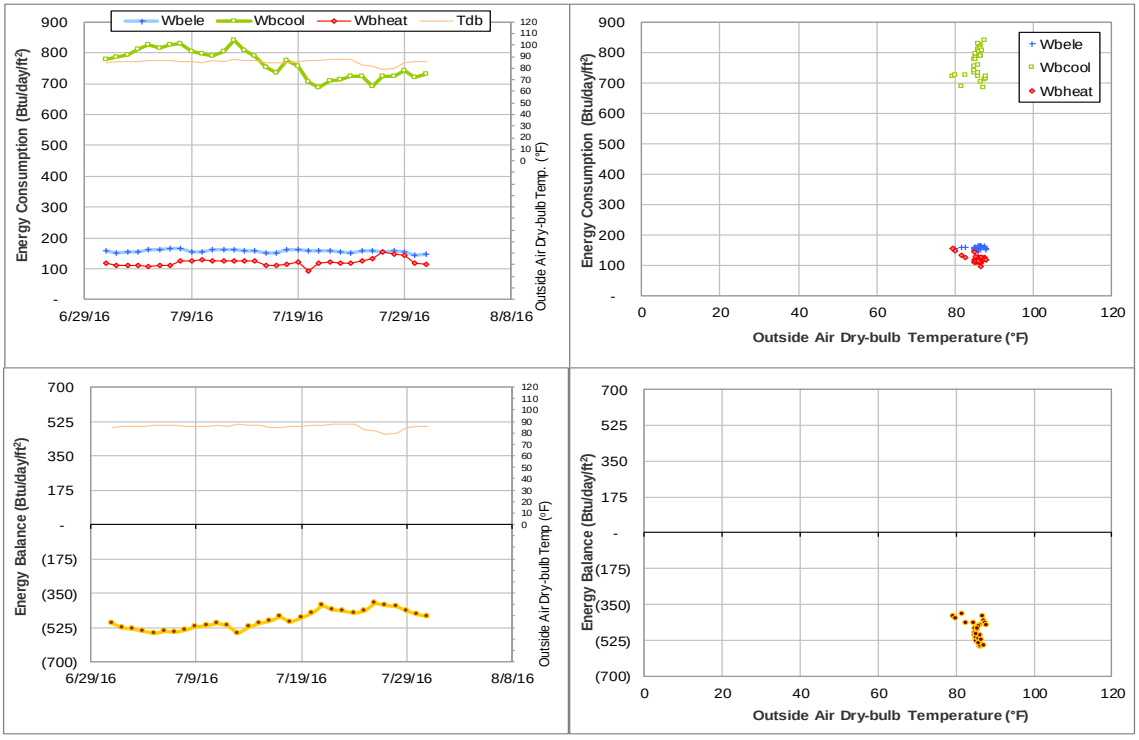


Figure V-15 Halbouty Geosciences Building TAMU BLDG # 490 Energy Balance Plot during July 2016

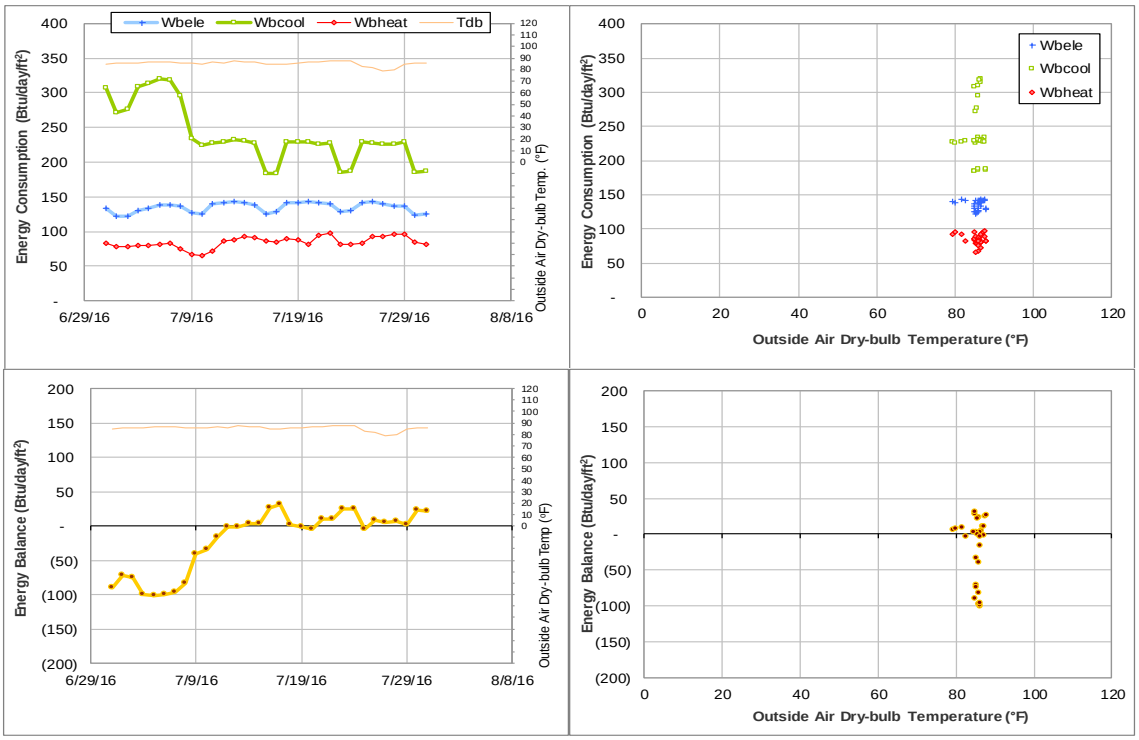


Figure V-16 Civil Engineering Building TAMU BLDG # 492 Energy Balance Plot during July 2016

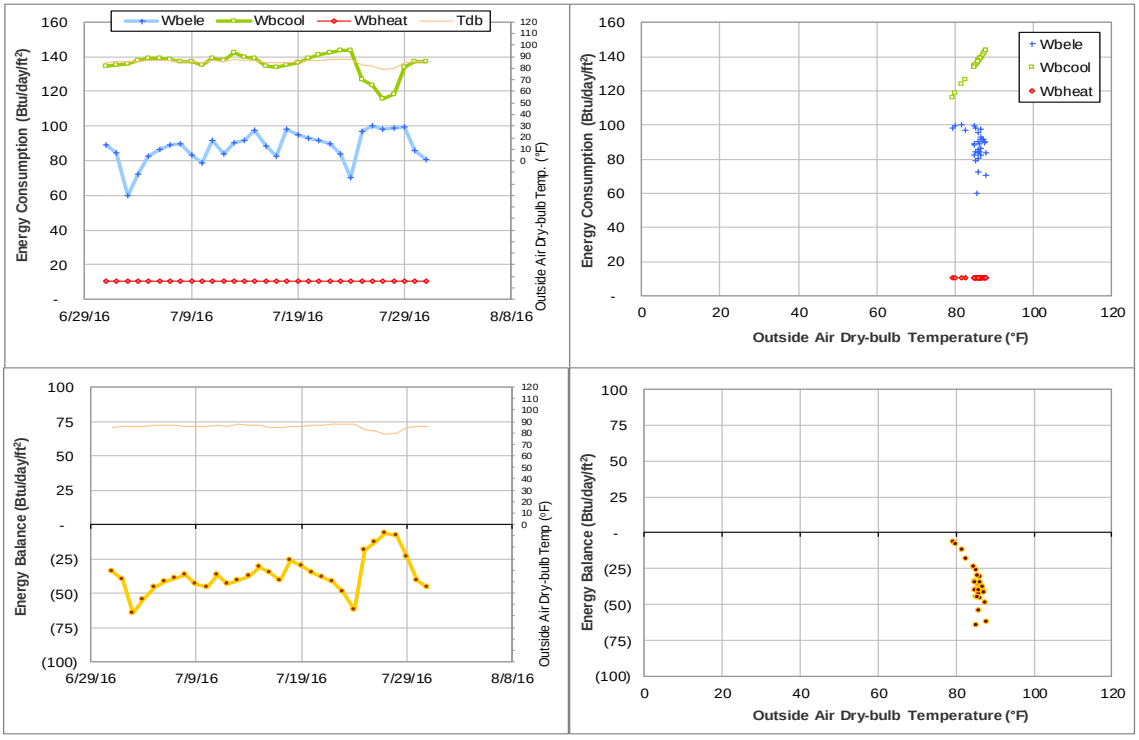


Figure V-17 Engineering Innovation Center TAMU BLDG # 499 Energy Balance Plot during July 2016

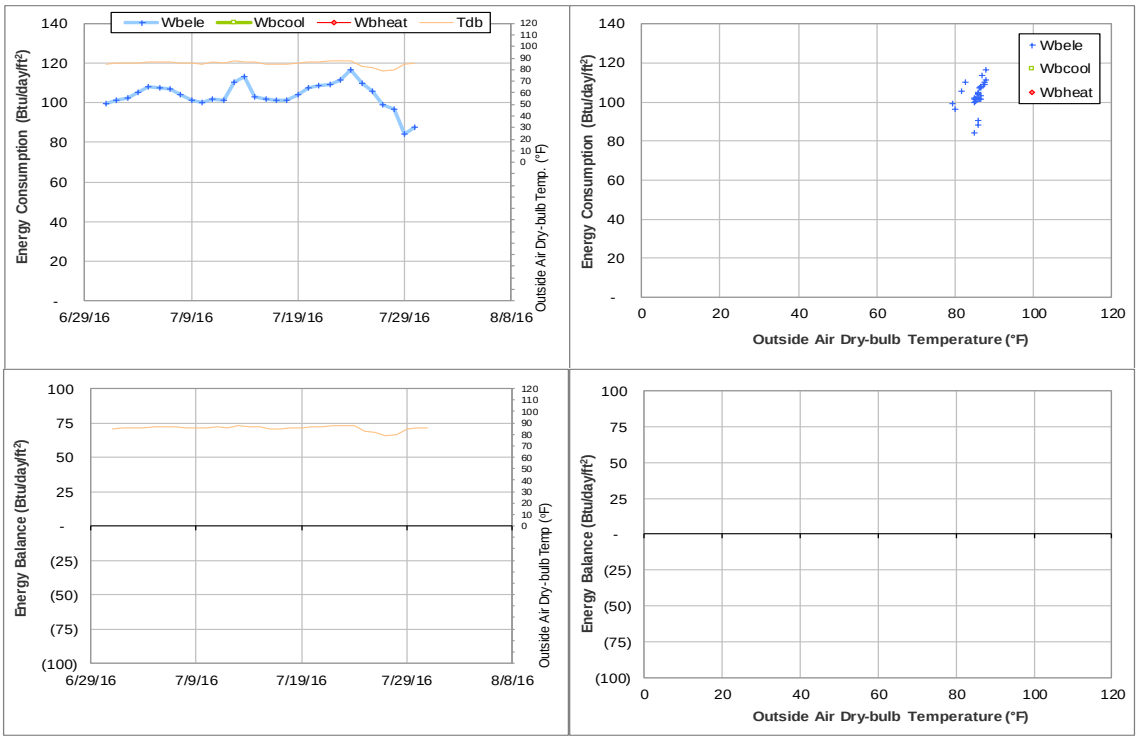


Figure V-18 Concrete Materials Laboratory TAMU BLDG # 501 Energy Balance Plot during July 2016

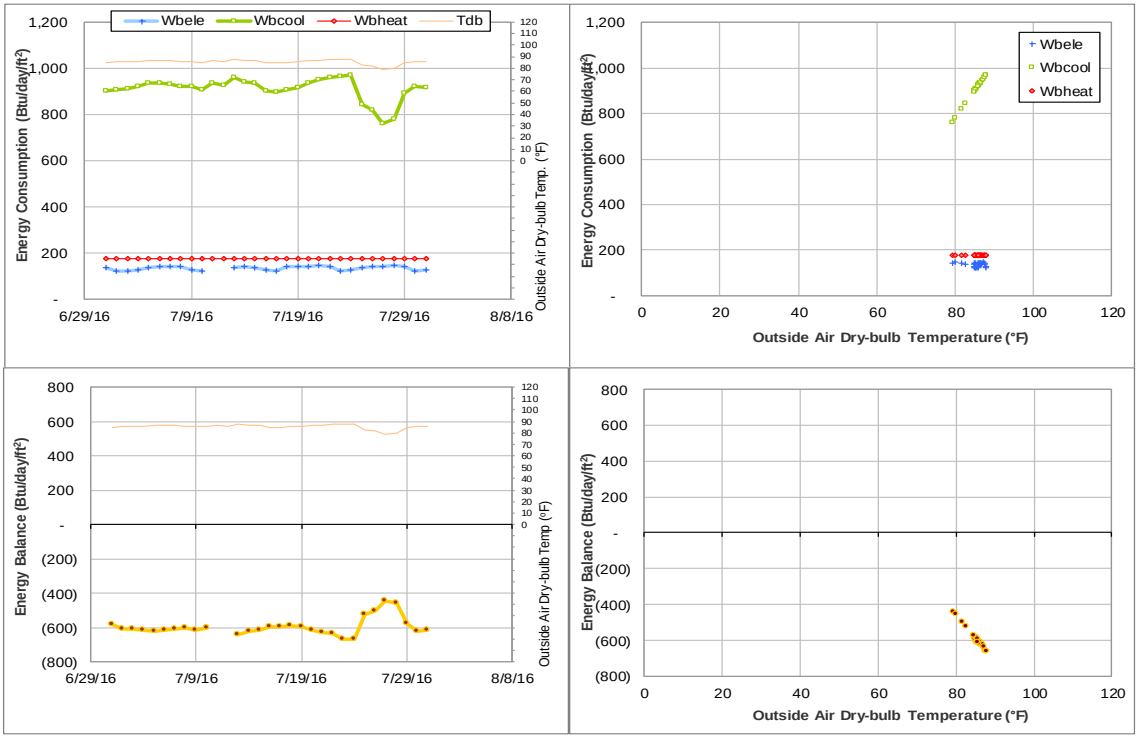


Figure V-19 Veterinary Medical Science Building TAMU BLDG # 507 Energy Balance Plot during July 2016

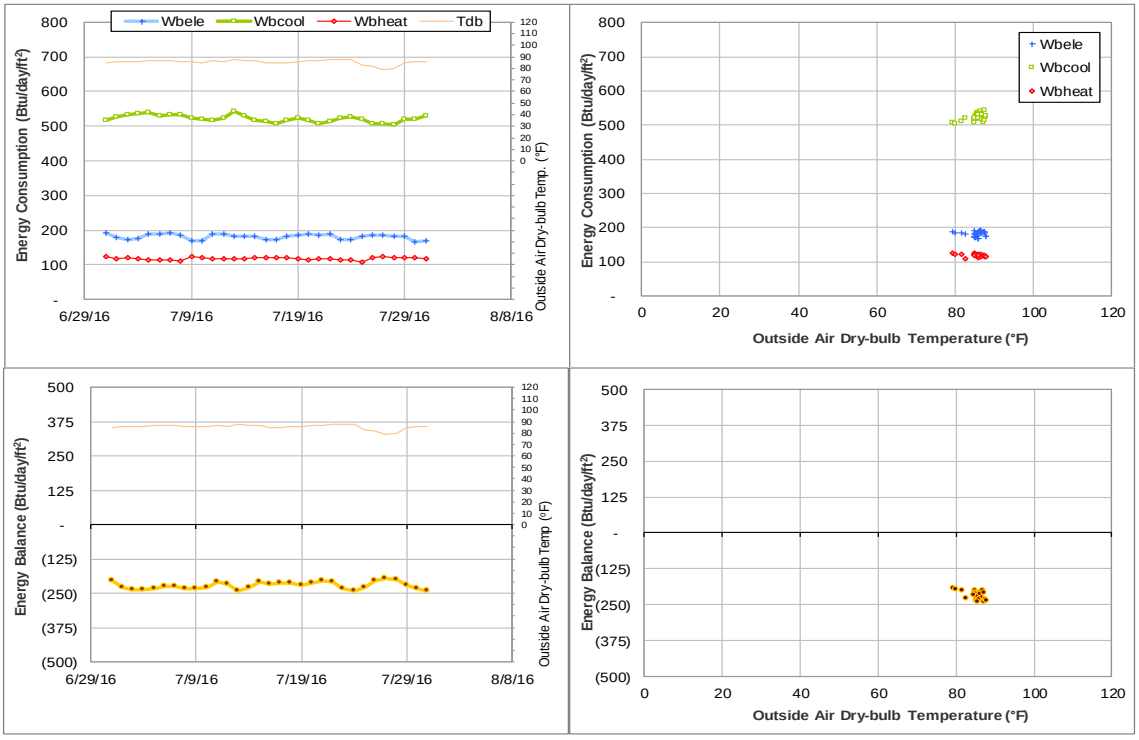


Figure V-20 Heep Laboratory Building TAMU BLDG # 511 Energy Balance Plot during July 2016

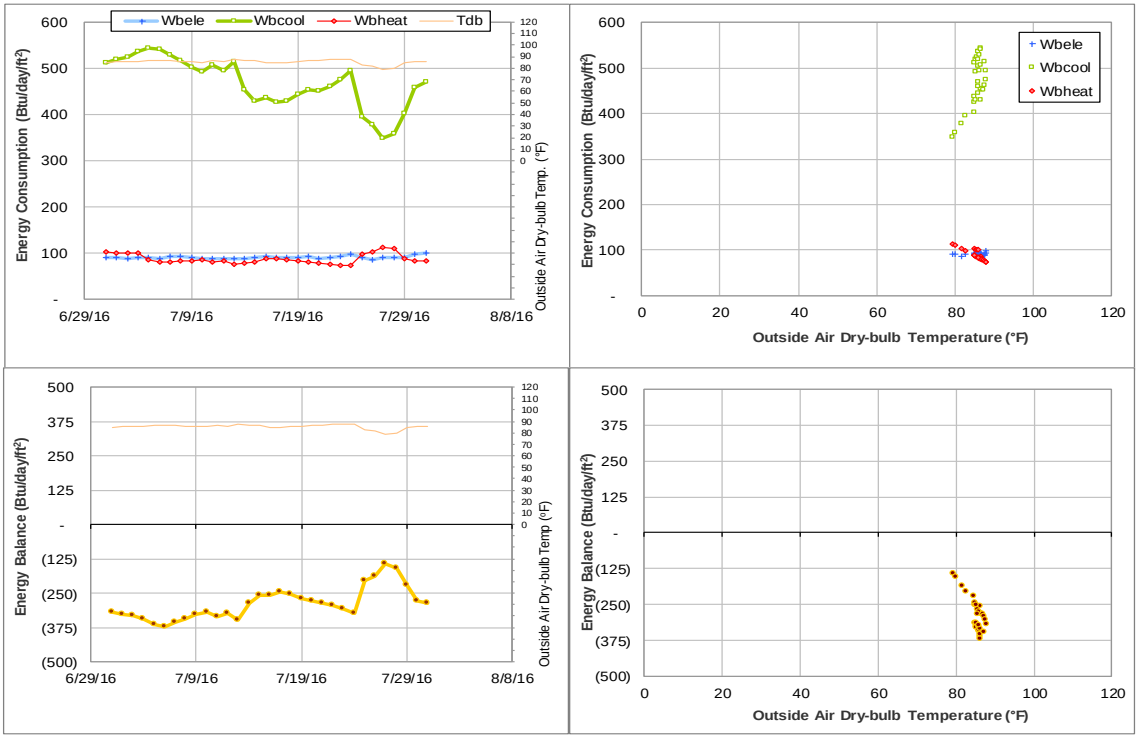


Figure V-21 All Faiths Chapel TAMU BLDG # 512 Energy Balance Plot during July 2016

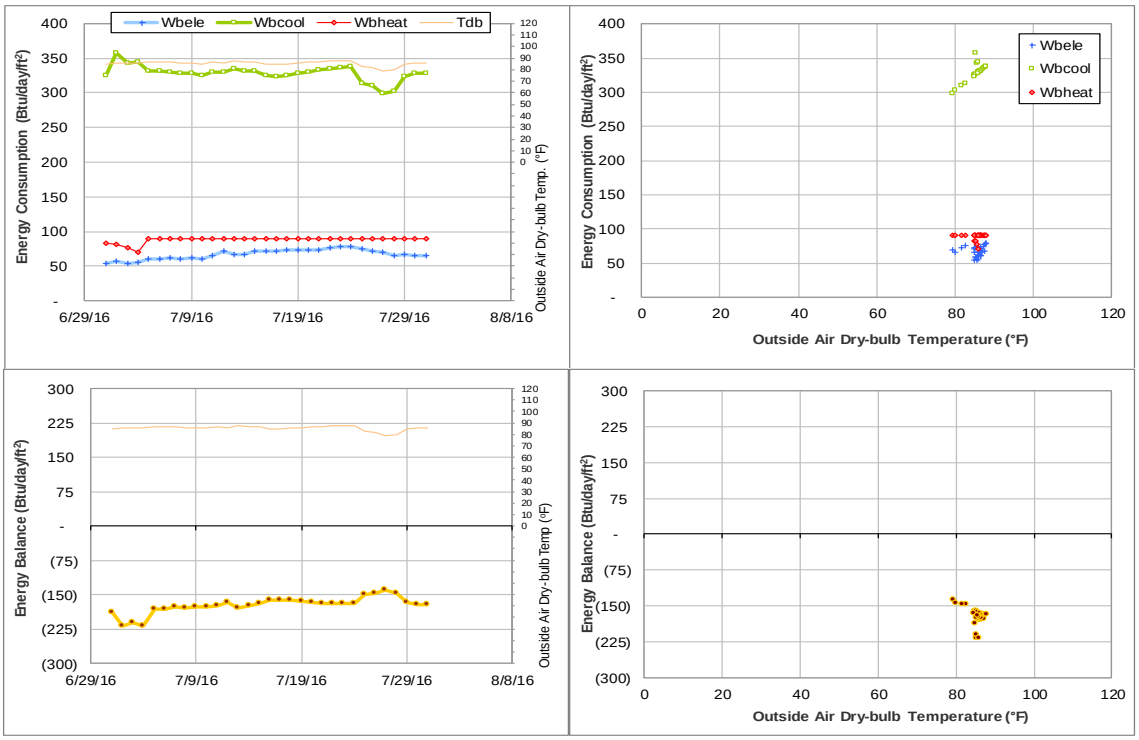


Figure V-22 Neeley Residence Hall TAMU BLDG # 652 Energy Balance Plot during July 2016

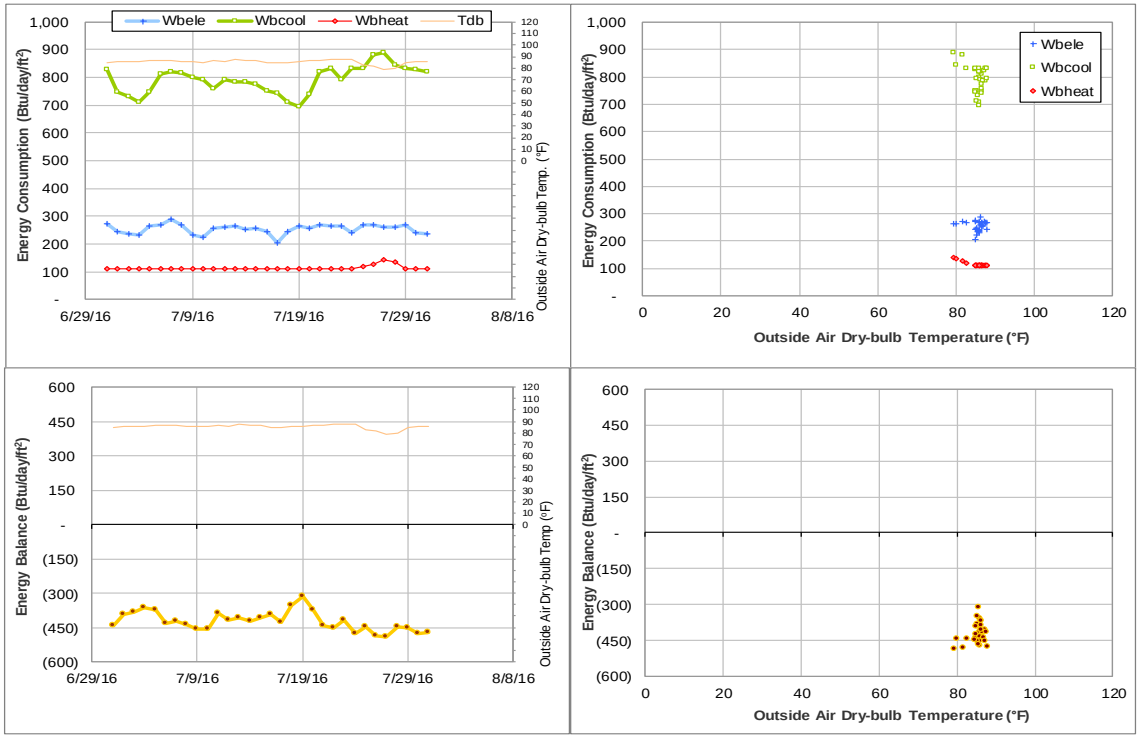


Figure V-23 McNew Laboratory TAMU BLDG # 740 Energy Balance Plot during July 2016

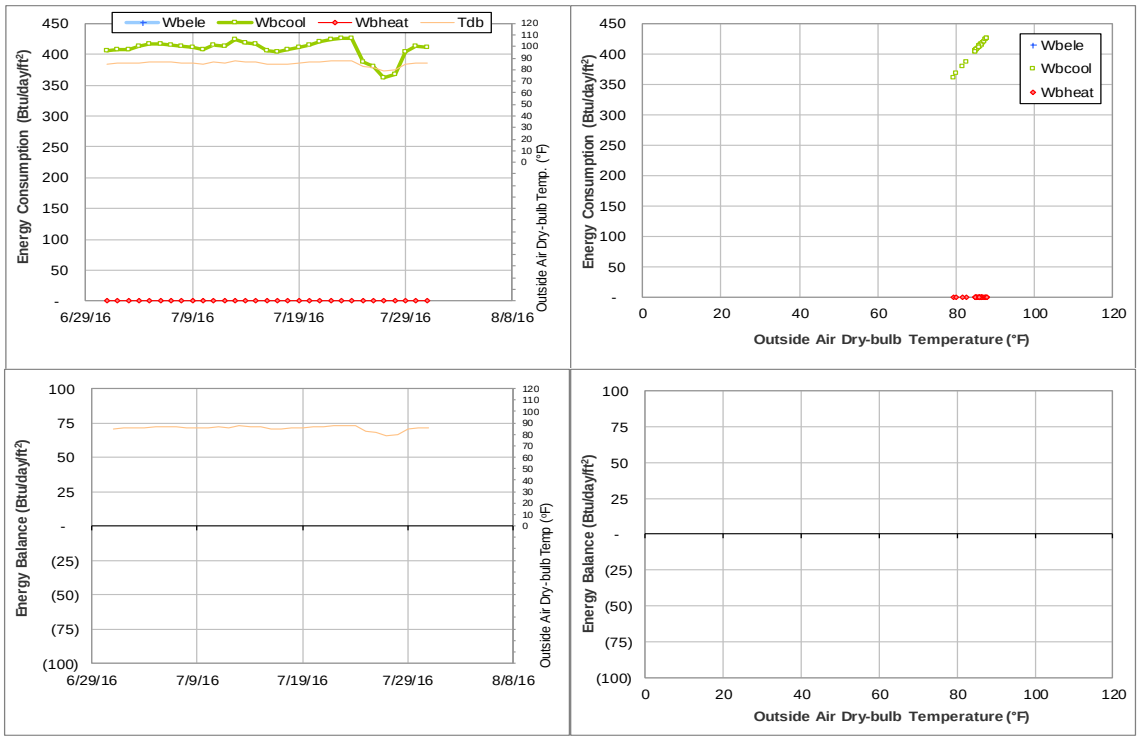


Figure V-24 TVMC-Small Animal Building TAMU BLDG # 880 Energy Balance Plot during July 2016

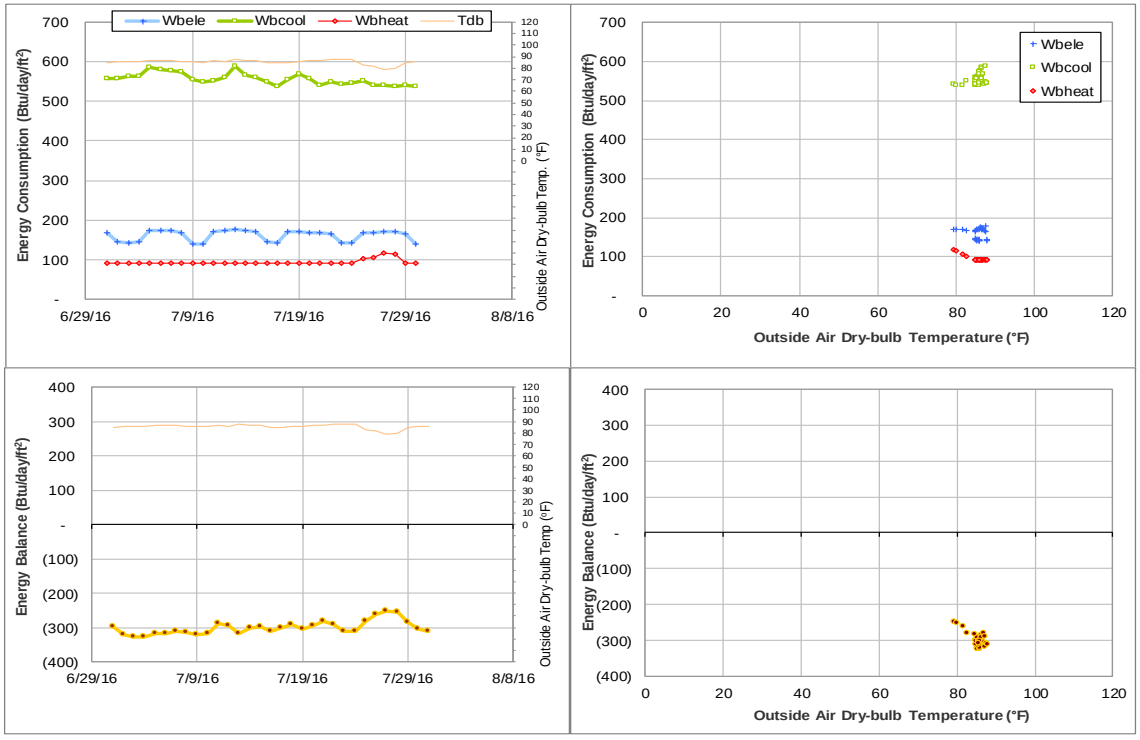


Figure V-25 Veterinary Medicine Administration TAMU BLDG # 1026 Energy Balance Plot during July 2016

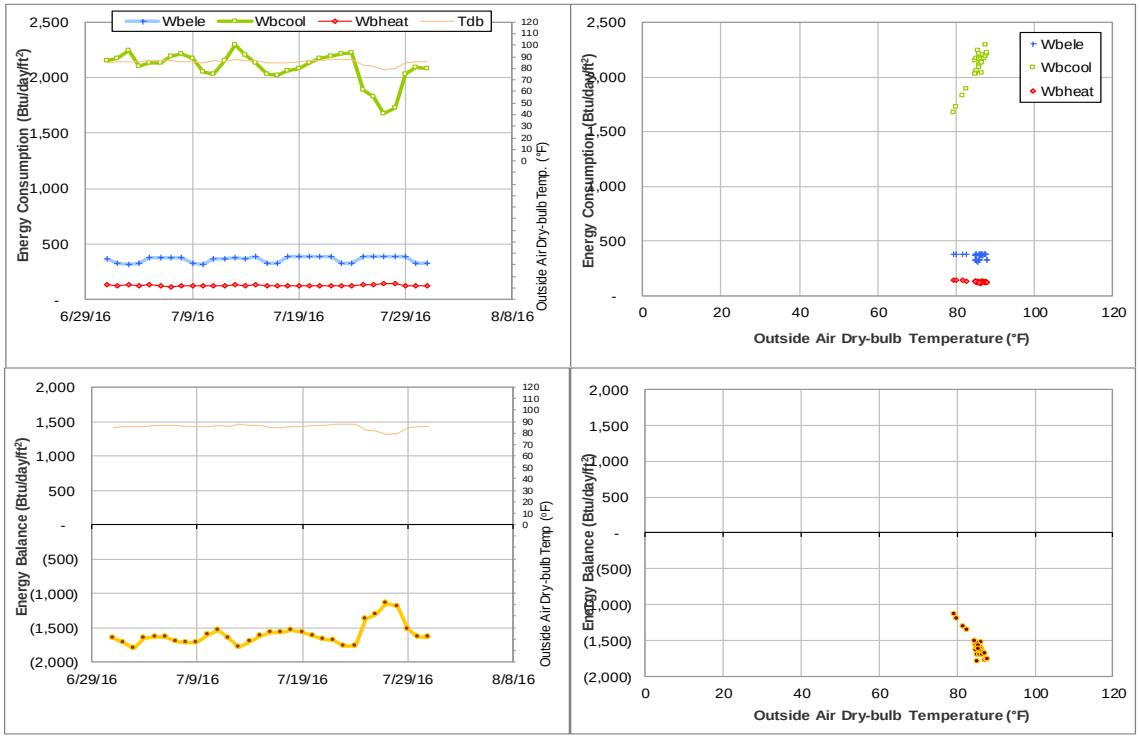


Figure V-26 Texas Vet Med Diagnostic Lab TAMU BLDG # 1041 Energy Balance Plot during July 2016

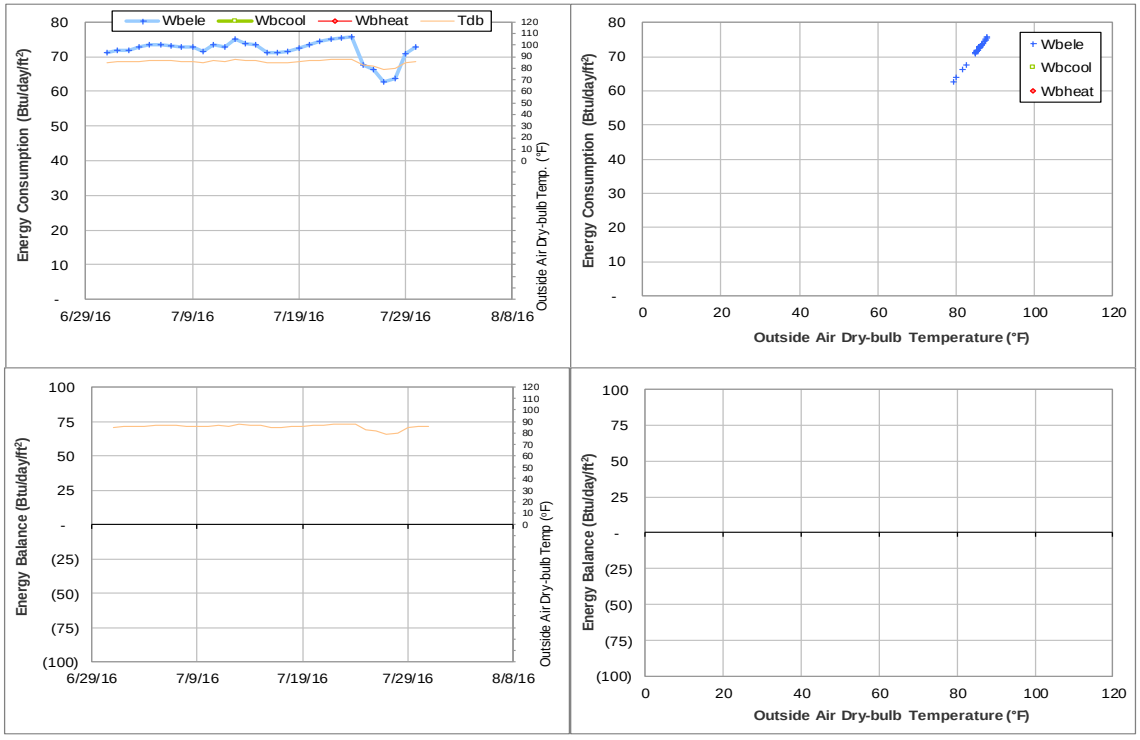


Figure V-27 University Apartments - The Gardens F TAMU BLDG # 1454 Energy Balance Plot during July 2016

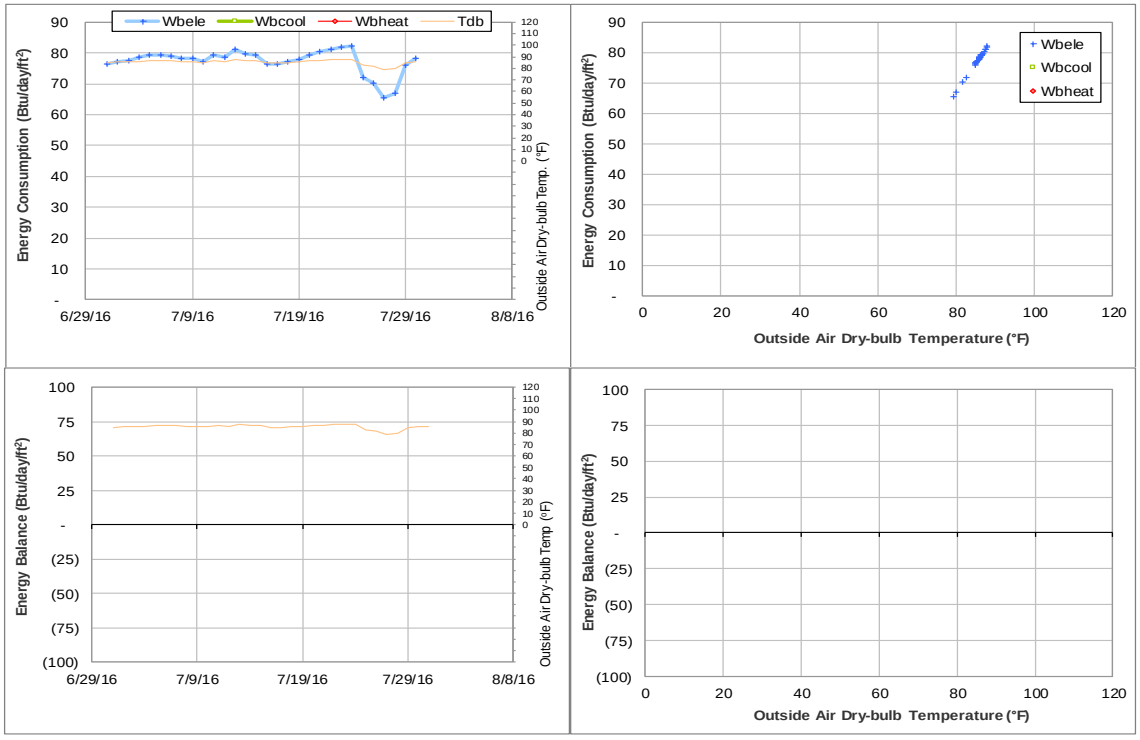


Figure V-28 University Apartments - The Gardens G TAMU BLDG # 1455 Energy Balance Plot during July 2016

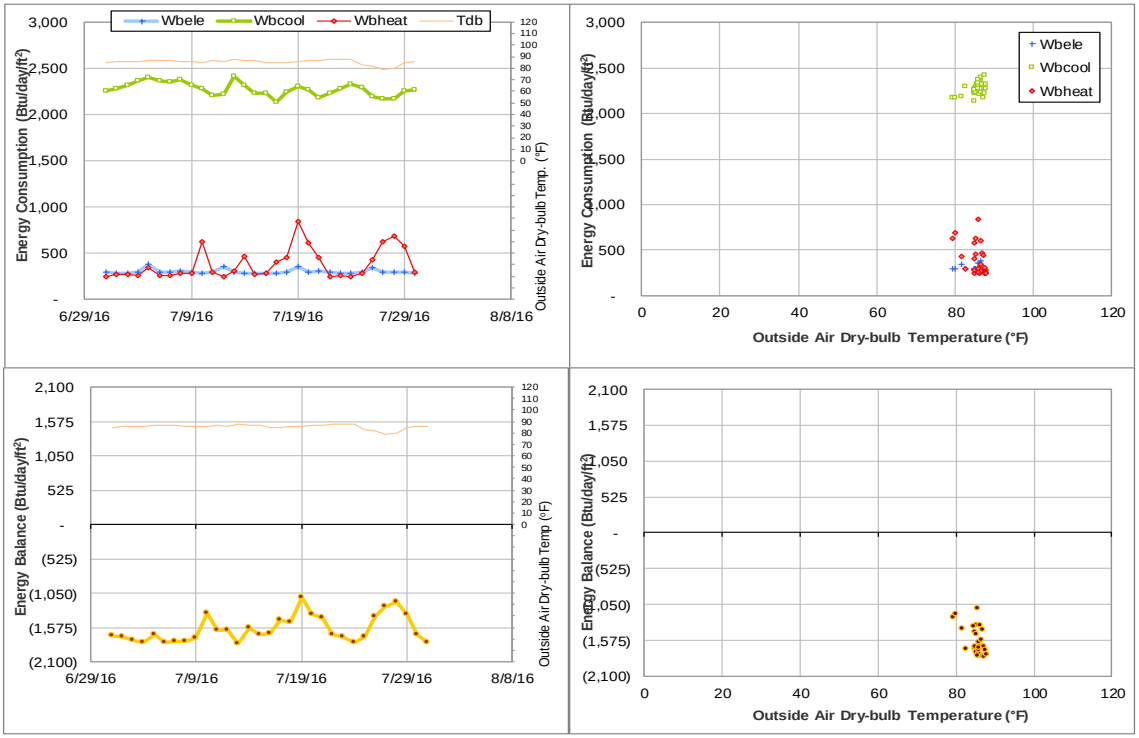


Figure V-29 Texas Institute for Genomic Medicine TAMU BLDG # 1900 Energy Balance Plot during July 2016

VI. Appendix

ENERGY ANALYSIS GROUP

ENERGY SYSTEMS LABORATORY
TEXAS A&M ENGINEERING EXPERIMENT STATION

Project: TAMU: Energy Analysis*

Report: Energy Consumption Data Quality Assurance/Quality Control Assessment Report for the Month of July 2016

Prepared for:

Utility & Energy Services

Division of Administration

Texas A&M University

Authors: Xiaoli Li, Yifu Sun, Kimberly Jones, Hongxiang Fu

Dr. Juan-Carlos Baltazar, and Dr. David Claridge

Date: August 2016

* For information on TAMU project please contact the Team Manager Dr. Juan-Carlos Baltazar